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Original Contributions.

CONDITIONS AND CIRCUMSTANCES MODIFYING EXTENSION FOR PREVENTION.

BY JOHN EGBERT NYMAN, D.D.S., CHICAGO. READ BEFORE THE ILLINOIS STATE DENTAL SOCIETY, AT SPRINGFIELD, MAY 13-15, 1902.

The volume and vigor of the discussion of that principle of practice known as "Extension for Prevention" are such that the writer believes interest in it is unabated, and so constitutes this fact his justification for the presentation of this paper.

Careful reading and studying of the published arguments, pro and con, personal observations, experiences and discussions with professional friends have convinced me that there are found carious cavities in the teeth of a nature which demand radical application of "extension for prevention," and others of a nature which suggest and justify a modification of this principle.

In every field of controversy there is a middle ground from which the unprejudiced observer may see the evidence lying on both sides of the line of difference and note that the opposing advocates have each a foundation of facts from which to argue, which has been unnoticed by the extreme partisans of both sides. Could they both be led to meet at this middle point each would realize that the other's belief was justified by his point of view; and could each in turn pass over to his opponent's field and observe, as he sees them, the cases offered as evidence there, it would soon cease to be a field of controversy, for there would be no misconception or misunderstanding to mislead, and an agreement would soon be reached.

Applying this argument to the present controversy, I can do no better than quote the words of that eminently skillful, well-known gentleman, Dr. S. G. Perry of New York: "At the very outset there is always danger of misunderstandings in such discussions as these. This is true to such an extent that I sometimes almost doubt the

wisdom of any discussion that cannot be had directly over the patient, where the exact conditions explain themselves. Then by a single glance all are equipped for a discussion which shall involve no misunderstanding."

Dispute and discussion disclose to the profession the fallacies that exist in a proposition, lead to their elimination, and finally establish it as a logical and approved method of practice or reject it as an injudicious procedure. Could all those who take part do so in the calm, tolerant manner that Dr. Black exhibits these discussions would be desired and encouraged and great good would result from them. As it is, good does result, but for the welfare of the public and the prestige of the profession we should reach a reasonably close agreement as to the method of operating which will give the best results in the greatest number of cases.

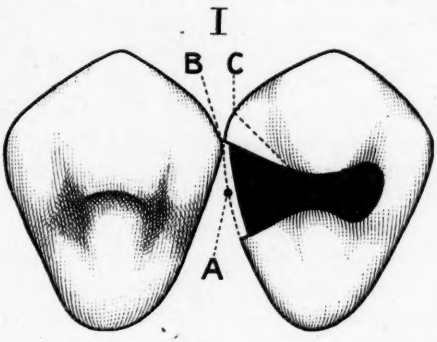
Could both sides examine the filling that had failed, note the characteristics and environment of the teeth, analyze and discuss the cause of the failure; and could both sides examine another filling, similar to the one which failed, which had been successful, and note the characteristics and environment of those teeth, I think they would speedily agree as to the cases which require radical measures and those which justify a modification of these principles.

Since a discussion under such circumstances is practically impossible, the question suggests itself—is it possible to classify and describe the characteristics of the cases above referred to? The writer believes it is and will later endeavor to do so.

A little over a year ago Dr. Ottolengui of New York gave the debate new impetus by inviting several prominent practitioners to discuss the following resolution: "That it is necessary to future safety of carious teeth that the gingival enamel margin in approximal cavities should be extended so as to lie under the gingival gum septa." This Dr. Ottolengui declared to be the dogma of Dr. Black's teachings, and even though it may perhaps be claimed that the text of Dr. Black's articles do not warrant such a statement, as it infers that he has decreed all gingival margins, without exception, must lie beneath the gum septum, while the text of his writings does not so state—it cannot be denied that even if Dr. Ottolengui erred in this inference, so too has probably the majority of the profession, and so Dr. Ottolengui was justified in the declaration. He was justified still further by the recent statement of Dr. Black, that had he fore-

seen the widespread consideration which would be given this practice of extension for prevention he would have even more carefully chosen the words to express his views. If the discussion which Dr. Ottolengui's declaration provoked has dispelled widespread misunderstandings—as I believe it has—then he was justified in his declaration, even though it was based upon a misapprehension and a misunderstanding.

That he was sincere is shown by the fact that he submitted his argument for the negative to eight gentlemen, four of whom he thought would oppose his views and four of whom he thought would agree with him, before he gave them to the society they were to



be presented to or published them in any journal; and still more by the fact that he gave these gentlemen time to prepare their arguments, favorable or antagonistic as they might be, and to submit them to the society at the same time he presented his, and then published them simultaneously in the same journal. For this the Doctor is to be commended in the heartiest manner. The discussion was interesting and some portions of it were quite amusing.

Dr. Ottolengui was unfortunate in his choice of the word "dogma" in characterizing the principles of Dr. Black, for while it is true that the lexicon defines it as "that which is held as an opinion, a tenet, or a doctrine," it also defines it as "a principle or a doctrine that is asserted or taught without sufficient evidence to warrant it," which latter is the popular meaning of the word, and no one can truthfully say that Dr. Black in all his career has ever advertently done any such thing. This unfortunately injected into a scientific

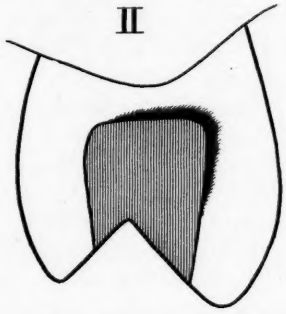
discussion a sentimental factor which evidenced itself in the fervid argument and blunt language of Dr. Wedelstaedt's reply. However, I think the use of this word in that respect may have been unintentional.

Dr. Ottolengui stated many things which were true, but erred most grievously when he said: "Then again in mouths superabundantly supplied with saliva, whatever the temptation to fill the small approximal cavity in the lower molar, our conscience would not permit us to thus save labor, for it is in the fluids of the mouth that the germs of decay propagate, and consequently *the more saliva* the more rigid the need for extension for prevention." I wonder that he did not correct that statement when he saw it in print, for he surely cannot be ignorant of the fact that *it is the quality and not the quantity of saliva that is the modifying factor in the propagation and operation of the germs of decay.*

Again he asks: "Can a part of a tooth be cleansed without resort to a tooth-brush by the tongue and lips and by the food itself during mastication?" Replying in the negative to this question, he says: "To dispose of the last proposition first I need only remind you that when a person eats on one side exclusively it is the *opposite* side of the mouth which is slimed with filth." The inevitable inference is that the teeth on the side upon which one eats are not found so "slimed," and therefore unwittingly the Doctor has offered an argument in the affirmative upon this question. Furthermore, his statement that "eighty per cent of the failures noted by me have been where the gingival border was under the gum tissue," does not accord with the observation of a large majority of practitioners, for it cannot be denied that one of the regions of the greatest relative immunity is that lying beneath the free margin of the gum.

I fully agree with Dr. Ottolengui when he says: "A cavity filled as he (Dr. Black) describes, with the gingival and other extensions as he directs, the filling being absolutely perfect, when completed would be as reasonably immune from decay as the hand of man could make it." Also further on when he says: "I have admitted that the cavity shape suggested by Dr. Black may be applicable to large cavities;" and again when he says: "The moral is that it is not the mere placement of the gingival enamel margin which will assure immunity; it is needful that the filling after insertion shall be perfect and thoroughly finished."

However, I disagree absolutely with Dr. Ottolengui when he states: "Extension with me rigidly involves all caries or enamel that may be called infected, but it goes no further and seeks no imaginary lines of immunity which, to my mind, do not exist." I have noted many cases in which a portion of a sulcus was uninfected, yet I am sure the Doctor would not insist that there was no necessity for cutting out the remainder of that sulcus and including it in the cavity. Again, I have seen some cases of compound cavities which started at a point of structural defect perhaps two millimeters distant lingually from the contact (Fig. 1—A), and after removal of all carious and infected dentin the buccal margin was exactly at the contact point (Fig. 1—B). No conscientious, scientific operator



would think of filling that cavity with the margin in that position, but would extend it buccally one or two millimeters (Fig. 1—C) to prevent occurrence of caries at the most susceptible point—that of the proximal contact.

Dr. Johnson's reply was characteristic of that impartial, logical man. He agreed that in some cases radical extension was uncalled for, but that much depended upon the position of the interproximal gum septum, the condition of the mouth and the age of the patient—circumstances which Dr. Ottolengui had entirely ignored in his paper. He also called attention to the use of gutta-percha for separating the teeth and forcing away the gum from the region of the cavity in the preliminary treatment of it, thereby eliminating many of Dr. Ottolengui's arguments as to the inapplicability of this method.

It is evident to one who studies this matter carefully that the men

of the East are not familiar with the detailed technique of the men of the West in the preparation of cavities and the finishing of fillings, the gingival margins of which lie beneath the gum.

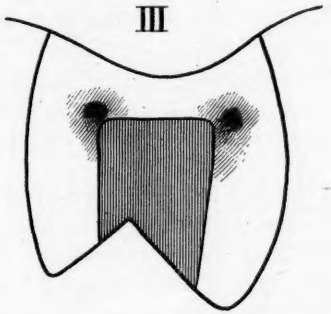
Dr. Darby's reply was splendid and I am sure will be universally indorsed. Especially is this true of the statement in which, after deprecating the use of the term "self-cleansing," he says: "If Dr. Black had said—carry the margins to a point where the tooth-brush would reach and clean the borders, nearly all would agree with him, because decay often recurs from insufficient extension." Also in this statement: "I should not deem it wise to cut away the whole approximal surface of a bicuspid or molar because it was defective at a minute point; but if that tooth were poor in quality, and decay were progressing rapidly, I should view it differently and cut as freely as they have dictated."

"Dogma"—that word—struck to the heart of Dr. Wedelstaedt, and his emotions are reflected in the fervor of his reply. It is evident that when he says: "Three or four cuts of a chisel will more often than not place the margins of these cavities on the proximal surfaces of the teeth into territories that are absolutely self-cleansing, and three or four cuts of a large Wedelstaedt hoe will so extend the cavity at the gingival margin that when the filling is completed it will be covered with a healthy gum margin"—he refers to large cavities which would probably be extended in similar manner by Dr. Ottolengui himself. While in small cavities, where extension below the gum and to "self-cleansing" (or the axial) lines bucco-lingually means extension through two millimeters or more of sound tooth structure, I doubt the ability of any man to accomplish this by three or four strokes of any instrument in each direction. Nor can I accept as convincing his evidence gathered from examination of fillings in extracted teeth, especially those which are of amalgam. His sarcastic remark that Dr. Ottolengui "knows absolutely nothing about scientific preparation of cavities," that "he is twenty years behind the times," is to be deplored. Ridicule never converted any man and should not be employed in a scientific discussion, except a last resort to discredit a man whom you do not believe to be sincere.

The reply of the man whose teachings were assailed, Dr. Black, was calm, tolerant, dignified, indorsing that which was said by his intimate friend, Dr. Johnson, admitting that circumstances and conditions sometimes justified a modification of his principles, explain-

ing some things that seemed to be misunderstood, and reiterating his faith in the essentials of extension for prevention.

A further instance of the misconception in regard to this matter by those of the East may be noted in a paper on "Extension for Prevention" recently submitted by Dr. Geo. S. Allan of New York. It is a general protest against the practice, without any specific argument. It is evident from the report of the discussion that the Doctor illustrated his idea of what extension for prevention means by drawings upon the blackboard, and it is to be regretted that the drawings were not reproduced when the paper was published, for then we would know whether his conception coincided with ours or not and could base our discussion accordingly. The Doctor's statements



were at times contradictory, as when he refers in one portion of his paper to this "new movement" and "this new method," and a little later he says: "These methods of shaping cavities are modifications only of the old." It is somewhat amusing to be invited to consider whether "an immune period of decay may not recur and thus do away with the necessity of extensive cutting." "An immune period of decay!" That is about as paradoxical as "a cold fire" or "a warm cake of ice."

It is evident that there is dissension among the ranks of the opponents of extension for prevention, for Dr. Allan states that the large extended cavities are easier to fill than the small unextended ones, while Dr. Ottolengui maintains that the opposite is the case. Dr. Gillett's discussion demonstrates that Dr. Allan has an exaggerated misconception of this matter, for he states that he "doubts if the gentlemen quoted to-night, with the possible exception of

one (with whose methods I am not sufficiently acquainted) once in a thousand times make such extension in a bicuspid as Dr. Allan drew on the board"—a statement indorsed at the same meeting by Dr. T. E. Weeks of Minneapolis. Dr. Allan closed his discussion by characterizing one of our most rational, considerate operators, Dr. Johnson, as a most extreme man, and attributed to him a statement that he never made, namely, that the men of the East who did not practice extension for prevention were twenty years behind the times. Such inaccurate quotations must cease or we shall drift still further apart.

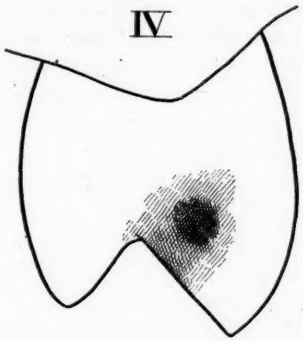
These instances decisively demonstrate that the disagreement is due very largely to misconception and misunderstanding. After all, it seems probable that while scientific, skillful dentists of the East differ decidedly from those of the West in theoretical discussion of cavity preparation, they differ less in actual practice. I think it unfortunate that the term "self-cleansing" has been used, as it implies an acquiescence on the part of the dentist to the patient's neglect of his teeth, and has probably done much to arouse the antagonism shown.

The Point of Dispute.—The great point of dispute is whether fillings fail because of faulty operating or because of neglect to extend margins beneath the gum and to the axial lines of the teeth. While no doubt many fail from the latter cause, I believe that the majority of failures are due to faulty operation.

Expectant Treatment.—I cannot conceive that it is the duty of the dentist to so operate that in the future a patient may disregard even ordinary cleanliness, and may neglect to give his teeth the daily attention that he bestows upon his hands, face and hair, without eventually suffering the natural penalty of such neglect. We have a mission as educators as well as operators. Therefore I cannot but feel that the operator in the ordinary cases of a private practice has done his full duty when he has extended his margins buccally and lingually to a point removed to a degree from the contact point and readily accessible to the toothbrush, even though they may not be extended to the lines regarded as self-cleansing. A man slovenly enough to leave the cleaning of his teeth to the food he masticates should be allowed to suffer the consequences. Nor can I feel it our duty to operate radically when present conditions do not indicate it, because in the future there may possibly be a recurrence of susceptibility. If the

factor of prophylaxis is deemed by one to be of such importance, then it becomes the duty of such an operator to cut out all proximal contacts and replace them with a material which carious processes cannot affect, for it must be admitted that should susceptibility ensue these are the points of greatest liability to caries and the ones most likely to be attacked.

Susceptible and Immune Surfaces.—Certain areas of a tooth are regarded as susceptible to decay and certain others are regarded as immune, this susceptibility and immunity being due to the anatomical situation which favors the retention of debris of food and stagnant secretions of the mouth; in other words, parts difficult to keep clean



because of their inaccessibility, such as the pits and fissures of the buccal and occlusal surfaces and the smooth surfaces of the enamel at the contact point. The area in the immediate vicinity of the gum margin, including the entire circumference of the tooth, is also susceptible to that curious form of decay known as "gingival caries," in which a zone of decay develops completely encircling the tooth in a zone just above the gum margin. It may be that this latter form of decay is due to the fact that the gingival secretions in periods of deranged function become so altered as to offer especially good material for the formation of gelatinous plaques.

Other surfaces are regarded as immune because of the fact that they are accessible to the toothbrush and are also cleansed by friction, by the tongue and cheeks, and by the food during mastication, or by the chewing of any substance, such as gum, while the region below

the gum is regarded as immune because of the protection offered by the gum margin.

There is no discussion regarding the susceptibility of pits and fissures or the region immediately at the contact point, but there is considerable discussion as to the area of susceptibility about the contact point. This area varies according to the shape of the teeth, the structural condition of their surfaces, and their relative position (in other words, their proximity to one another), and the position of the interproximal gum septum, it being a much larger area in some cases than it is in others.

On teeth of great contour in normal position, with the gum septum either close to the contact or removed a considerable distance from it, and in mouths containing thin, clear saliva, it is a much smaller area, comparatively, than upon teeth of little contour in normal position with the gum septum removed a little from the contact. The difference in the size of the susceptible area is still greater if these latter teeth are in abnormal position or are in mouths containing thick, turgid saliva.

In regard to immunity—of course, strictly speaking, no such thing exists upon the surfaces of teeth. The writer has noted primary caries upon almost every surface of the crown of a tooth, even upon the cusps and along the axial lines. Therefore this term is used in a relative sense as referring to regions of the least susceptibility.

Dr. Black has recently made a sharp division in regard to cavities found upon the smooth surfaces of the teeth adjacent to a compound filling, which admits of more coherent discussion of the subject than was possible formerly:

First. Cavities due to a faulty filling, which have their inception directly between the margin of the filling and the margin of the cavity, and open up a crevice along that margin. (Fig. II.)

Second. Those in which the inception of caries occurs at a point outside the margin of the filling and extends to and involves the filling only after extension in the course of time. (Fig. III.) Upon this second class of cavities Dr. Black bases his argument for extension of cavity margins through sound tooth structure.

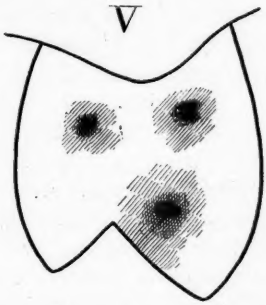
Caries found in the enamel surface adjacent to a filling, the nucleus of which is without the margin of the filling (or not between the filling and the cavity wall) and which involves it only by extension in the course of time, is *primary caries.* (Fig. III.) This is occur-

rence and not recurrence of decay. Such regions therefore must be well-nigh as susceptible to caries as the region at or near the contact point, and the advisability of the extension of the margins so as to include these regions within the cavity must depend upon the percentage of the cases observed in which caries is found at or near the contact point alone. (Fig. IV.)

Those in which two or more smooth surface cavities are found coexistent but independent of one another, one of which is at the contact point. (Fig. V.)

Those in which a smooth surface cavity is found in the region regarded as susceptible, without caries at the contact point. (Fig. VI.)

Those of the third class (Fig. VI) are identical with those in a



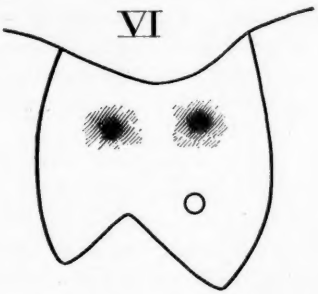
region near a proximal filling (Fig. III) and logically must be found as often in one case as another. I do not know that a definite numeral value has ever been determined for the terms "rare" or "frequent," or for that phrase, "negligible quantity," by which is meant a quantity so small that it is not considered a factor of any influence and therefore may be disregarded in the consideration of a problem. Could we agree upon the numerical value of these terms and this phrase, and would competent observers record and classify all cavities coming under their observation, the percentage could soon be determined, and if it were so low as to be considered a "negligible quantity," or so high as to be considered a factor of importance, our duty as to extension would soon be determined beyond logical controversy.

Evidence.—All rational discussion must be founded on facts, therefore our arguments for or against this practice must be founded upon evidence, and for a brief moment I wish to speak of some varieties

of evidence which have been submitted which are not reliable. The evidence found by examination of fillings in extracted teeth is circumstantial, so to speak, and of a character open to doubt, for to be certain of the correctness of the conclusion drawn as to the cause of the condition observed one must know what was the shape, position and condition of the proximal tooth when this extracted tooth was in the mouth. In other words, *you must know what the environments of this extracted tooth were before you can definitely diagnose the cause of the condition observed,* and if you do not know what they were the correctness of your conclusions, whatever they may be, is open to grave doubt. For instance—we will suppose that a good operator has put in a perfect compound gold filling in the distal surface of the second bicuspid, that is perfectly adapted, contoured and polished, so far as perfection is possible; but has not extended the gingival margin beneath the gum because there was a millimeter of sound tooth structure above it which at that time he did not deem necessary to remove. Some time later the mesial surface of the adjacent molar became carious. The process was slow and the cavity was neglected. Gradually the contour was lost and the tooth driven forward closer to the bicuspid until the contact was finally removed to a point at or near the gum margin. (A, Fig. VII.) Then, owing to discomfort or pain, the individual has, for some reason, applied to another dentist, who is a careless operator and simply fills the cavity without separation, without contouring the filling, and probably without properly polishing it, leaving the contact point as he finds it, at or near the gum margin.

It is certain that caries will recur at that abnormal contact point and that a cavity will in time under ordinary conditions develop in the sound structure gingivally and to either side of that gold filling in the bicuspid. Were that bicuspid extracted and examined it would demonstrate the typical claims as to caries developing in sound tooth structure around a gold filling thought to have been good because put in by a good operator, because of failure to extend the cavity margins so as to include that area. However, could the examination be made before extraction, and the environment noted, it would be evident that the abnormal contour of the proximating surface and the abnormal point of contact were responsible for the caries about that filling. *So evidence to be positive, exact and reliable must be gathered from cases in the mouth when all the environments may*

be noted. Furthermore, unless the examination be made a short time after caries has developed there will be so much loss of tooth structure that it will be impossible to definitely determine whether caries was due to a faulty filling and developed first between the tooth margin and that of the filling, or whether the filling was perfect and caries began upon the surface outside the filling and extended to it as the cavity developed. The shape of the cavity of recurrent caries, after it is fairly developed, does not accurately indicate the exact initial point of decay, for the carious process does not extend the cavity in a symmetrical manner, and we must know the exact initial point of decay if we are ever to arrive at definite conclusions in regard to this matter.



The discovery of the instability of amalgams renders the evidence gathered from observation of conditions about such fillings absolutely valueless for the discussion of extension for prevention, and such evidence should never be presented as a demonstration for either phase of the controversy, unless one knows what amalgam was used, how it was manipulated, and the manner in which it was inserted.

Nor do I believe that from observations in infirmary clinics one can formulate principles of operating which are applicable to private practice, as the conditions found in the two places are vastly different. The majority of infirmary patients are uneducated, of a low order of intelligence, live amid more or less unclean environments, and have developed careless, unclean habits, which it is simply impossible to induce them to correct, even though you may clearly illustrate the evil results which follow therefrom, for it seems out of the question to make them appreciate even common-sense advice couched in the

plainest language. Many of them live a hand-to-mouth existence and have always regarded a toothbrush as a luxury and not a necessity, while the keeping of body and soul together necessitates long hours of hard labor and their spare moments are barely sufficient for food and sleep. For these poor souls radical extension for prevention is probably necessary to protect them from their habits, and anything less will fail of permanent results.

After all, this whole question is one of cleanliness, for a clean surface from which deposits of all nature are removed by constant friction, no matter from what source, does not decay.

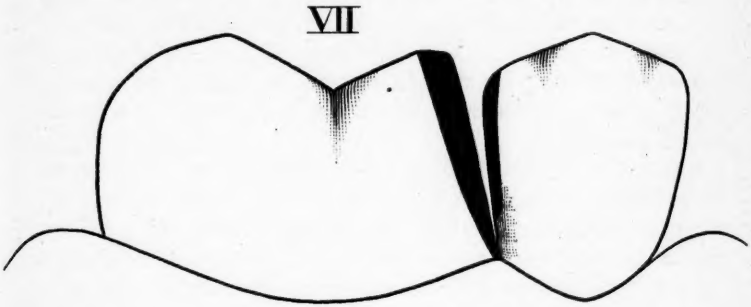
Nor is the fact that a gold filling was inserted by a good operator absolute proof that it was a perfect filling, for the best of operators are but human and therefore liable to err. Under the mental and physical stress accompanying a busy practice one's muscles will tire, his brain grow weary, his eyes weaken, his fingers lose their skill, and he will be below par mentally and physically for an hour or two, or perhaps a day—and so will his operations, without his being conscious of it.

Cause of Failure.—It seems to be an established fact that caries about a compound filling develops most frequently at the gingivo-buccal and gingivo-lingual angles of the margins, and I cannot help feeling that this is due in many cases to an unnoticed injury to the enamel in this region by the beaks of a separator, so I am opposed to their general use and but seldom employ them. Do not infer from this that I do not appreciate the necessity of obtaining space for operating, especially in regard to contouring and finishing. I do appreciate it and do obtain it—but seldom, however, by the application of separators. I also believe that a large number of failures observed at these angles has been due to the fact that it has been largely and is yet to a degree the practice to cut deep grooves or pits at these points for the anchorage of the filling. This almost invariably leaves a section of enamel without its *natural* and *necessary support*—the dentin (E-E, Fig. VIII)—and it is very likely that the wedging of the gold into the pit or groove and between the dentin and the unsupported wall of enamel either checks the latter throughout its thickness or else weakens the cohesion of the enamel prisms. Even if the gold is packed without these injuries to the enamel, still that section of the enamel has been placed in an abnormal environment; its natural support has been replaced by a material of different physi-

cal properties and of an altogether foreign nature, and it has been cut off from the serous moisture of the dentin.

It is quite logical to believe that under these conditions the cement substance of the enamel (or its organic matrix) degenerates until it no longer firmly binds together the enamel prisms, and that that enamel section loses its resistant power, a condition develops which permits infiltration, and thus it becomes extremely susceptible to caries.

Finishing of Fillings.—I believe that oftentimes the careless finishing of fillings at these points leaves the enamel surface in the immediate vicinity in a rough, scarified condition, and thus renders these



regions much more susceptible than they would be were they well polished.

Small and Medium Fillings.—It is admitted that small and medium fillings have sometimes permanently maintained their integrity and preserved the tooth in which they have been inserted. It has been asserted that this has been due simply to the fact that shortly after their insertion a period of immunity ensued and made their permanence possible; that the cavity would not have increased had it not been filled at all.

Of course, we know that there are cases of arrested caries, even where the process has progressed to the formation of a cavity, in which decay suddenly ceases and there is no more loss of tooth structure from that cause. Also other cases where a filling has been dislodged shortly after its insertion and has never been replaced because there was no pain arising from the loss, and despite the fact that it is an ideal spot for the collection of debris and an ideal habitat

for bacilli, safe from disturbance by the toothbrush, the floss or the toothpick, there is no extension of the cavity from recurrence of decay.

Of course these cases corroborate the previous statement about small and medium fillings, and indicate absolute immunity despite physical defects of the teeth—an exceedingly rare condition. But this view the writer does not indorse, for these cases are very few compared with those cases in which we find small and medium fillings in perfect condition and performing their service of preservation of that surface of the tooth in which they are placed, while caries has attacked the specially vulnerable regions of other teeth in the same mouth, and progressed rapidly unless interfered with, refuting the correctness of the aforesaid statement and demonstrating that there are other reasons for the success of those fillings than general immunity of the mouth. This condition may be noted in the mouth of the writer and in the mouths of a number of dentists of his acquaintance in Chicago.

It is my belief that if caries is found along the cervical or at the bucco-lingual angles of the cervical margin of a compound proximal filling, and is of such character that the cause is not clearly indicated; the condition of the proximal contacts of the teeth in the immediate vicinity, providing they have no compound proximal fillings, is an index to the cause. If they are intact the caries is probably due to faulty filling, but if the contact points are also found to be carious, then the decay about the proximal filling may have been the result of insufficient extension.

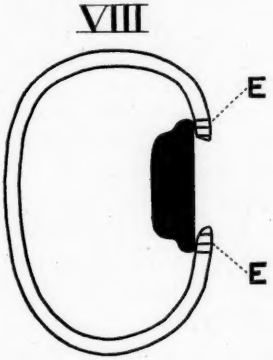
Many men have contended that it has not always been necessary to extend the margins of small or medium cavities so that the gingival margin shall lie beneath the gum septum and that the width of the cavity shall be two-thirds the bucco-lingual diameter of the tooth, and the advocates of extension for prevention, including Dr. Black and even Dr. Wedelstaedt, have admitted that there may be cases justifying a modification of this principle.

But the consideration of these cases has been limited to a mere statement to the effect that they are found. The writer feels that these cases are too numerous for such scant consideration and merit a classification and description that will bring them to the attention of the profession. Now, to attempt to state the circumstances and conditions having a modifying influence upon the position of the cav-

ity, first stating that all statements and arguments thereupon relate to extension through sound tooth structure and the insertion of permanent fillings. To my mind the modifying conditions and circumstances are as follows:

The age, condition, and habits of the patient.
The shape, location and condition of the teeth.
The position of the interproximal gum septum.
The position of the cavity.
Esthetic considerations.
General condition of the mouth.

These factors must be studied until judgment is acquired to differentiate the cases and base the operative procedure accordingly.



Again, is necessary that talent of judgment, the possession of which makes some men great and successful, while the lack of it makes others insignificant failures.

The Condition of the Patient.—If the patient be of that peculiar nervous temperament, emotional and hysterically inclined, which exhibits strong reflexes from pain which are beyond his power to control; if it is evident that the patient has but a limited amount of mental and physical endurance; if it is thought that the ordeal of radical extension will cause him so much suffering that in the future he will shun the dentist and neglect his teeth because of his dread of a similar experience—I believe one is justified in modifying, even to a large degree, this practice of cavity extension, especially if the patient be an intelligent person who can be induced to carefully clean the teeth after every meal. Dr. C. N. Johnson has summed it up

splendidly: "We are never justified in breaking down the nervous system of a patient by the blind following out of some heroic theory."

Furthermore, much depends upon the frequency and regularity with which a patient presents himself for inspection by the dentist.

Age of the Patient.—As a rule, in patients above the age of forty the periods of probable susceptibility have been passed, and one may modify these methods without fear of unfortunate results. In patients ranging from fifteen to twenty-five years of age, in whose mouths are found numerous evidences of great susceptibility, it is probably wise to practice full extension in proximal compound cavities in the bicuspids and molars, if it be deemed advisable to insert permanent fillings, as the probabilities are that the period of susceptibility will continue for from seven to ten years at least. In middle life the operator may be governed by circumstances and conditions which will be discussed a little later on.

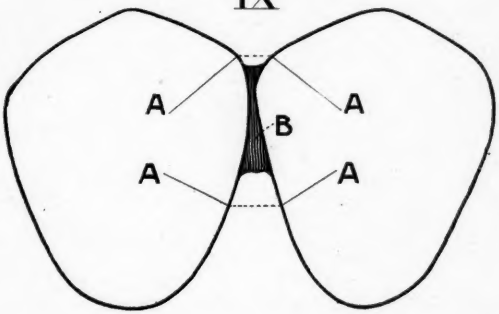
Position of the Cavity.—If the cavity be in the mesial side of the first bicuspid there is not the necessity for extreme extension buccolingually that there is in cavities upon the distal side of the second bicuspid, for the reason that the cuspid is always a much narrower tooth than the first molar, and the bristles of the toothbrush will reach much nearer to the contact point than they will in the region between the second bicuspid and the first molar. Cavities in the distal half of the first bicuspid and the mesial half of the second bicuspid may be given an extension which will be an average between that used on the mesial half of the first bicuspid and that on the distal side of the second bicuspid. The same is true of the mesial half of the first molars in comparison with the distal surface of the same tooth and the mesial and distal surfaces of the second molar.

Esthetic Considerations.—In regard to the anterior teeth, I cannot reconcile myself to extension for prevention as practiced by its enthusiasts, unless it occurs in the removal of carious or infected tooth structure. I should prefer to spend the time that would be occupied in such extension in convincing the patient that if he would take strict care of his teeth it would not be necessary to cut away a great deal of the tooth structure which was not decayed. I should prefer to take my chances of being obliged to refill a tooth within from three to five years' time, if it should be necessary, than at the time to so operate for a patient that he would be disfigured so long as that tooth remained in his mouth. I cannot regard the display of metal in the

anterior teeth as anything less than a hideous disfigurement, and I cannot but believe that the majority of patients would be willing to take their chances of temporary preservation, with natural beauty of the teeth, to the certainty of permanent preservation with lasting disfigurement. Especially is this true in the cases of women and children. Happily, the development of the porcelain inlay has met many of the esthetic objections.

Shape, Location and Condition of the Teeth.—If the teeth be of marked contour, so that a lateral section of the teeth, that is, molars and bicuspids, at the contact point shows marked convexity; if the lines of the proximal sections diverge markedly and rapidly from the contact point (Fig. IX); and if the same thing were true of a longi-

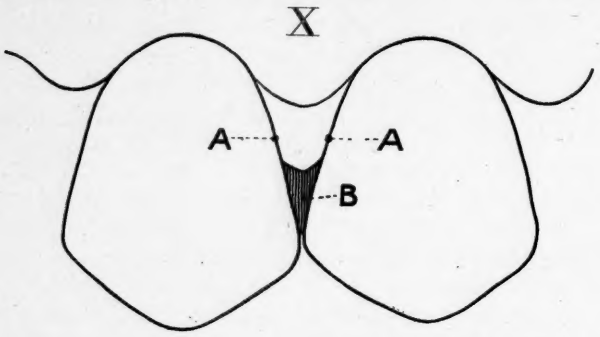
IX



tudinal section through the same point (Fig. X), the extension of cavity margins need be carried but a short distance from the contact point in any direction, for at but a short distance (AA-AA, Figs. IX and X) from the contact point will be found space enough for the entrance of the bristles of a toothbrush, and the divergent tooth walls are so far apart that stagnant secretions will not be held by capillary attraction in contact with the tooth structure (B, Figs. IX and X). This area of capillary attraction will also depend upon the consistency of the saliva. In short, in teeth whose longitudinal section and latitudinal cross section at the contact point show but slight convexity, and whose proximal lines diverge slowly and slightly from their juncture at the contact point (Figs. XI and XII), it is essential that full extension should

be made, for it will be necessary to extend to a point where the amount of divergence is sufficient (AA-AA, Figs. XI and XII) to permit the entrance of the bristles of a brush, and too great for the operation of capillary attraction (B, Figs. XI and XII).

In irregularities of the teeth it is often the case that instead of there being a contact point there is a contact surface of considerable area, and if you have not the opportunity to correct the irregularity and obtain a natural contact, you must extend the margins of the cavity radically to obtain readily accessible margins. While if there be any physical defects not of a carious nature in a region near the cavity, it should be included within the cavity, even though at the

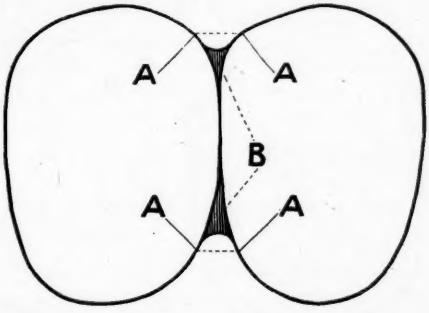


time of operation it may be in sound tissue. If on account of a physical defect caries develops at what is usually the contact point, but there is a definite space between that tooth and the adjacent one, there is no need for extension beyond that due to the removal of infected structure.

Position of the Interproximal Gum Septum.—This, and the shape and position of the teeth, are the most important factors in the problem of extension of cavity margins. The septum of the interproximal gum may be found anywhere from the contact point to a point from one to two millimeters above the enamel margin of the crown of the tooth. Frequently it extends completely to the contact point and entirely fills what would be the interproximal space, so that no space is there. Of course, under such circumstances there cannot be any preparation of a cavity, which shall accomplish the removal of the carious and infected tooth structure, that does not carry it below the

gum margin. Whereas, in teeth of marked contour, where the gum septum lies from two to four millimeters below the contact point, there is no necessity, if after the removal of all carious tooth structure there remains from one to two millimeters of sound tooth structure, of extending that cavity below the margin of the gum. Nor do I believe in extending the gingival margin below the enamel line when the gum margin lies below it, unless it is absolutely necessary to do so in removing carious tooth structure, because of the fact that such a procedure leaves two points on the buccal and lingual sides which it is practically impossible to finish so that they will not offer a lodgment for particles of food. It is true, however, that at the age at

XI



which proximal caries is most frequently found the gum septum lies close to the contact point, and nine times out of ten the removal of carious and infected dentin has placed the gingival margin below the gum.

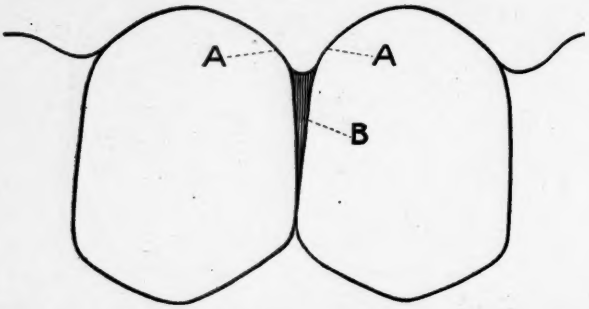
General Conditions of the Mouth.—If there are found only isolated cavities in peculiarly susceptible localities—if the saliva is clear and of thin consistency—if the patient is robust and enjoys constant good health—if the soft tissues are normal—if the patient has been obliged to have but an occasional filling inserted during the past years—if there are in the mouth compound proximal fillings whose margins were not extended, which are in perfect condition after the lapse of a number of years—then we are justified in very slight extension.

But, if the mouth shows signs of persistent susceptibility through a number of years—if the patient be subject to catarrh and the soft tissues show signs of an inflamed condition—if the saliva be turgid

and of a thick, ropy consistency (for the thicker and more turgid the saliva the greater the area of capillary attraction and the greater the area of susceptibility)—if the patient has been obliged to have fillings inserted at frequent intervals in the past—if compound proximal fillings which seem from general appearance to have been skillfully inserted and finished, but whose margins have not been extended, have failed in a comparatively short time—then we should extend more radically than under conditions previously mentioned.

One will find after studying the question that in this, as in many others matters, "Circumstances alter cases." In a word, extend your cavity margins to accessible lines, to lines beyond the area of capillary retention of stagnant secretions, so that a perfect filling can be kept

XII



clean, and you have done your duty to your patient, for you will not have unnecessarily sacrificed sound tooth structure or caused him needless pain. So I advocate strongly extension for accessibility—that is, accessibility to the toothbrush. And I also strongly advocate that we discontinue the use of the term "self-cleansing."

After all, I cannot but feel that perfect manipulation is perhaps even more important than radical extension; for the latter will not avail, nor can cleanliness be maintained, unless a perfect filling is inserted, and a perfect filling will not avail unless cleanliness is maintained. I cannot believe that no matter how perfectly a filling is placed, contoured and polished, it will fail if the margins are not extended buccally and lingually two-thirds the diameter of the tooth and gingivally beneath the gum septum, unless there is permanently a condition of immunity in the mouth.

I believe that cavities of the character I have described, prepared after methods of Dr. Black and Dr. Johnson as regards seating, anchorage and beveling of margins, without undercuts or pits leaving sections of enamel unsupported by dentin, and filled after their methods of adaptation, condensation, contour and finish, will be successful even though the preparation does not include radical extension for prevention, if the patient makes careful use of the toothbrush daily.

In conclusion, unnecessary removal of tooth structure is unjustifiable from any point of view, and adds to the woes of the operator as well as those of the patient. Therefore, in the endeavor to save both from unnecessary pain and fatigue—in the endeavor to enlighten operators who apparently cannot recognize the cavities justifying modification because they have never been described to them, and have indiscriminately radically applied this principle—in the endeavor to convert those who, because they misunderstood this one detail of Dr. Black's teachings and could not believe that in certain cases its application was essential, refused to believe in him or his teachings at all, refused to apply the principles he has expounded in the many cases in which they are eminently the principles to apply, and have withheld from him the full measure of gratitude and praise that his labors and contributions to our science merits—in the endeavor to reconcile sincere men, North, South, East and West, this paper has been written.

Discussion. *Dr. E. H. Allen,* Freeport: I heartily agree with the views of the essayist, so there are only one or two points that I would bring up. In the proximal cavities of bicuspids and molars it has been my practice for a number of years to carry the margin of the cavity to the point of accessibility, so that the margin may be kept clean with a toothbrush. I would not often extend the gingival margin so that it should be covered by the gum septum unless caries had invaded that territory. I agree with the essayist that Dr. Black has been misrepresented, and I further agree that radical extension should not be carried out on the anterior teeth. As regards immunity, if I had to deal with a cavity in the proximal surface of a bicuspid or molar, and it appeared that the patient was practically immune from caries, I would extend the margin to the point of accessibility because the fact that he is now immune does not warrant the supposition that he will always be immune; also, it is diffi-

cult to prepare a cavity in the teeth referred to for a small filling, and finally, it would not be a contour filling, but would either give a flat surface or be like a little bump. The essayist is right regarding instructions as to cleanliness, for to give same is one of a dentist's first duties. I think that a mechanical separator is a thing of torture, and I believe that decay often recurs just where the jaws of the separator have injured the enamel and made it possible for bacteria to gain a foothold. In polishing a filling coarse disks or strips are apt to make deep scratches, and a ridge may be cut at the gingival margin without your knowing it, so great care should be taken with the margin.

Dr. G. V. Black, Chicago: It is exceedingly difficult with this and other subjects for us to understand each other and the expressions used. I am misunderstood because my language has not conveyed to others the thought that was in my mind. I have been misunderstood in this—that cutting for access, shaping for strength, etc., have all been attributed to extension for prevention. With reference to the incisors, I can hardly imagine an ordinary case where I would show the gold filling, especially in cutting for extension for prevention. I would show it much more in cutting for access, but where I have shown gold to any extent upon incisors it has been because the enamel was undermined and too frail to leave. What does extension for prevention mean in this particular case? It means simply squaring out the normally round cavity of decay toward the bucco-gingival and linguo-gingival angles. There is occasionally a case where the cavity has occurred some distance from the contact point, or the latter has been some distance from the incisal edge, where we must extend incisally in order to properly place the contact point, but in this case extension for prevention should not mutilate the tooth. Here then is a confusion as to what cutting should be attributed to the principles of extension for prevention. In any study of this subject we must have in close relationship a study of caries and its ways of attacking the teeth, remembering that extension for prevention is intended to prevent subsequent attacks, so the extension should be in lines always only where this reattack occurs This reattack is not upon the labial surface of incisors nor along the angle of same. It will be near the gingivæ in the central portion of the labial surface and not upon the angle. If you will note carefully all cases of decay you will see that caries very

seldom begins primarily upon the angle, consequently the angle of a tooth is a safe line toward which to cut, but never cut around an angle for extension for prevention.

Concerning definitions, take up primary and recurrent caries. I have always used the term "recurrent caries" to express a reattack of a surface on which a filling has been made, no matter what the cause may be, recognizing two conditions in which decay recurs—one in which the filling has been perfect and the caries occurs just the same as primary caries; the other in which the filling has been imperfect, and the decay occurs between the cavity wall and filling because of leakage.

The study of immunity is very important. Many of the fillings which have lasted for twenty or thirty years are in immune mouths. The filling is imperfect and would not last a year if the conditions of susceptibility were present, as we often see them in young people. The filling is bad in every respect, yet it lasts, but in that mouth you will find that decay has not been progressing on the other surfaces of the teeth. In other cases we may find a filling that has prevented recurrence of decay where everything else about it has gone to rack, so we know that fillings properly made in cavities properly prepared do protect. Caries is our subject, and we must understand it well so as to cut this or that cavity. With an understanding of caries we may make modifications to suit the conditions found, and that is extension for prevention. In the mechanical operation for filling we must cut for access, for simplification and for strength, and the man who fails or is afraid to do all these things ought not to make a filling.

We should never perform operations on the teeth of our young patients that would make possible a breaking down of the nervous system, no matter what the conditions might be, and we also should not break down the courage of our young patients and render them liable to neglect their teeth because of the fear of dental work. Do not try to make permanent operations where the conditions are such that you will fail to make good fillings. Tide your patient along and work for the conditions that will enable you to do good work.

Concerning separators, I first want to enter an objection to those that slip over the enamel or slide into the interproximal space. The proper separator should lift the teeth apart. I know of no way that we can relieve our patients from so much suffering as by their use.

It used to be one of the worries of my life in inserting gold fillings to use the mallet upon teeth whose peridental membranes had been made sore by slow separation. The Perry separator enables me to lift the teeth apart with the least possible amount of pain, secure room to make the filling, and do it with the membrane of the teeth in good condition to withstand the necessary malleting. The patient is relieved from the pain in condensing the filling that used to be present with the slow method of separation. As regards the injury to the enamel, I have subjected extracted teeth to as much strain as I thought the separator would bear, afterward grinding the enamel to see whether there had been any injury, and I have examined teeth that had been separated in the mouth, and I can see no reason for injuring the enamel with a separator. Patients are hurt with a separator when it is screwed up tight and left so that it will rock up and down and back and forth. The separator should be propped with gutta-percha under each bow. Furthermore, if you put the separator on bell-crowned teeth, and do not prop it to prevent its slipping into the soft tissue, you will do your patient a lasting injury.

Dr. J. G. Reid, Chicago: I agree with everything that the essayist has said, so would refer to only one point, namely, the abuse of finishing strips. This is one thing which has led me for many years to use tin and gold as a finishing material at the cervical margins, because it can be trimmed and shaped with instruments and precludes the use of those damnable sandpaper strips.

Dr. F. H. Skinner, Chicago: The remarks of Dr. Black with regard to separation apply to teeth which are not close together, but when the surface of a tooth is so lost that the gingival margins of it and the adjoining tooth are touching, I would ask Dr. Black if he does not consider previous separation absolutely necessary?

Dr. Black: Most assuredly. In such cases I generally spread the teeth a little with the Perry separator, put in gutta-percha and let it get hard, repeating the operation every few days until sufficient room is secured. This or other methods of slow separation will not cause soreness.

Dr. J. N. Crouse, Chicago: I use the Perry and the Parr separators; the latter is more in the way and harder to adjust, but can occasionally be used where the other cannot. I prop the separator as suggested by Dr. Black, but use modeling compound instead of gutta-percha.

Dr. Nyman, closing discussion: This paper was not directed against Dr. Black, but against that class of extremists who extend everything under all circumstances; also against those men in the East who have repeatedly drawn faulty conclusions from what Dr. Black has written. One seldom finds small proximal cavities in bicuspids and molars. By the time they are evident nine out of ten of them would be classed as medium cavities. I think much of the dispute that has arisen East and West has been due to the fact that use was made of the term "self-cleansing," because the inference is that the teeth are left to care for themselves, receiving no care or brushing from the patient. Nobody deprecates more than I do the injudicious use of disks and strips along the gingival margin. The great trouble in using separators is that the tips and not the surfaces of the beaks come in contact with the teeth. I used to be worried by those compound cavities in molars and bicuspids which extended below the gum, involving the whole proximal wall, and which required separation of the teeth for proper operation. Now I simply remove the decay, break down the weak enamel walls and pack with gutta-percha, always instructing the patient to chew on that side. A month later I pack in more gutta-percha, and before long have the teeth sufficiently separated and the gum tissues crowded away from the gum margins. I first fill the gingival third of the cavity and then slide in a wooden wedge which does not impinge upon the septum. This maintains space while I put in the rest of the gold.

SOME OF OUR PREDECESSORS.

BY A. H. FULLER, D.D.S., ST. LOUIS. READ BEFORE THE ILLINOIS STATE DENTAL SOCIETY, AT SPRINGFIELD, MAY 13-15, 1902.

I have chosen this subject with the view of presenting portraits of a number of those who have passed to the unknown shore, and who were active in advancing our profession along lines of progress, thus adding to the usefulness and respectability of the calling. While not intending to enter upon the history of the profession of dentistry, it may be necessary to make some reference to dental history in order to properly give credit to those to whom it is due, the grateful remembrance of their successors in many cases being the only legacy left to family or friends. Their names should be familiar to every member of the profession. We should emulate them in our works

and appreciate the benefits we have received from their labors. Most of those whose portraits will be presented have been identified with the profession in America.

The first picture shown upon the screen is that of *Ambroise Pare,* known as the first practitioner of modern surgery. He was born at Laval, France, early in the sixteenth century, and died in Paris, Dec. 22, 1590. He accompanied the French army to Italy as surgeon in 1536, and wrote numerous works on surgery. In one of his books, written in 1579, he gives a very correct account of the teeth, their number, position and uses. In cases of toothache he advises calling a physician and recommends purging, phlebotomy, cupping glasses to neck and shoulders, scarification, washing the mouth with the juice of pomegranates, plantain water, concocted vinegar, etc., narcotics to be dropped in the ear in order to stupefy the nerves, leeches to the gums, and opening the veins under the tongue and behind the ears. He describes the operation of transplanting teeth, and relates a case where it was reported a success. He says: "Teeth artificially made of bone or ivory may be put in the place of those that are wanting; and they must be joined one fast unto another, and also fastened unto the natural teeth adjoining that are whole; and this must chiefly be done by a thread of gold or silver." He used the pelican for extracting teeth, which instrument, Nasmyth says, was in use in London as late as 1830. These quotations are given to show that during the two hundred succeeding years, as evidenced by the writing of John Hunter and the testimony of Paul Revere, given elsewhere, there was little advance in dentistry—surgical, operative or mechanical.

The next slide is that of *Pierre Fauchard,* who wrote in 1728-46 and '86.

John Hunter, surgeon and physiologist. England. Born 1728—died 1793. John Hunter was the son of a farmer, and when seventeen years of age was apprenticed as a cabinet-maker to his brother-in-law. He afterwards assisted his brother William, who was a lecturer on surgery in London. He continued in his anatomical work, took up and completed the study of medicine and surgery, received an army appointment and served as staff surgeon for four years, where he collected material for his work on gunshot wounds which was published after his death. It is not necessary in this connection to refer to the numerous works and papers of this well-

known writer. His first original published work was "Natural History of the Human Teeth." The first part was published in 1771, the second part in 1778, and it has the credit of being the first work on dentistry of any scientific value published in the English language. Thomas Berdmore, an Englishman, published a work in 1770 entitled "Operations on the Teeth," but this was more a history of cases than anything else. Previous to the book by Hunter, numerous works in the French or German had been published, notably those of Fauchard in 1728-46-86, Bourdet, 1754 to 1764, and Jourdain, 1756 to 1766, in the French. Following Hunter, the early part of the nineteenth century was prolific with works on dentistry, many of them of much merit—among them Fox, Fuller, Bell, Robinson, Murphy, Bew, Koecker, Snell, Jobson, and numerous others in English, and in French, Dellabarre, Maury, Lefoulon, Serres, Rousseau, Geriot, Duval, Blandin and Schange, who wrote on the treatment of irregularities of the teeth.

Sir John Tomes. Born March 21, 1815; died July 29, 1895. Better known in America from his authorship of Tomes' Dental Surgery than from anything else, although in England he is honored and loved for his untiring efforts for the advancement of the dental profession. Sir John Tomes took up the study of medicine in 1831, and commenced the practice of dentistry in 1840. In 1859 the first edition of his Dental Surgery was issued, which has had numerous subsequent editions. He, with others, struggled sixteen years for the recognition of dentistry before the department of Dental Surgery was established by the College of Surgeons in 1859. Twenty years later the Dental Act was passed. He was knighted for eminent services rendered his profession, and was honored by his confreres with every high office within their gift, and frequently by tokens of regard and appreciation. His contributions to the literature of the profession are numerous and of great worth.

Sir Edwin Saunders. Born in London, 1814; died 1901. Adviser of Queen Victoria for forty years. Knighted 1883. Was one of the organizers of the Odontological Society of Great Britain, and twice its President. (First society in England.) Was largely instrumental in the organization of the first dental school, and was one of its trustees. His energetic assistance was recognized by his friends, who established the Saunders Scholarship. Sir Edwin was chairman of the dental section of the International Medical Congress

in 1881, and President of the Metropolitan Counties Branch of the British Medical Association the same year. This recognition of our profession as a branch of medicine was highly appreciated. He was also President of the British Dental Association in 1886. Altogether, he was an honor to his profession which honored him, and an honor to the country which gave him birth.

Dr. Emil Magitot. Born in Paris, 1833; died in Paris, 1897. An honorary member of this society. Dr. Magitot was the son of a dentist graduated in medicine, and made the study of the teeth and their diseases a life work. His books easily made him the leading man in France on dental subjects. In conjunction with Charles Robin and Ch. Legros he wrote numerous publications on The Development and Structure of the Teeth and on the Genesis and Evolution of the Teeth of Man and Lower Animals. His works on Dental Anomalies and Dental Caries are well known, the latter being translated into English by Dr. Chandler of Boston.

Professor Hollander. Died at Halle, Germany, 1897. Dr. Hollander was head of the dental department of the University of Halle for twenty years previous to his death. His works on the "Extraction of the Teeth," "Methods of Filling Teeth," and a manual on "Dental Medicine" are well known; he also translated into German Kingsley's Oral Deformities and Tomes' Dental Anatomy.

Paul Revere. Born 1735. Died 1818. (The Midnight Ride of Paul Revere.—Longfellow.) There are discrepancies in our history of dentistry, as to who first practiced the calling in the Colonies. We have, however, a good line of facts from which to draw conclusions.

Dr. John Greenwood, in his memoirs, published by his son, states that his father, Isaac Greenwood, was the first practicing dentist in Boston. John Greenwood was born May, 1760. It is more than probable that his father was in dental practice at that time.

Mr. Baker, a surgeon dentist from England, located in Boston soon after this, and from him Paul Revere learned the art. Mr. Baker, then located on School street, advertised in the *Boston Gazette* as follows: "I take this method to express my gratitude to the public for favors received and hope that those who doubted the safety of my art, from its novelty in this country, are now convinced of its safety and usefulness." He also stated that his pots of dentifrice were sealed with his coat-of-arms to prevent fraud. When Mr. Baker left Boston he probably went to Philadelphia, as Watson's

Annals of Philadelphia speak of a Mr. Baker as the first person ever known as a dentist in that city, Vol. I, page 179. Paul Revere took his practice and advertised to this effect: "He flatters himself from the experience he has had these two years (in which time he has fixed some hundreds of teeth), that he can fix them as well as any Surgeon Dentist that ever came from London. He fixes them in such a manner that they are not only an ornament, but of real use in speaking and eating. He cleanses the teeth and will wait upon any lady or gentleman at their lodgings—he may be spoken with at his shop opposite Dr. Clark's," etc. This was about 1768. His artificial teeth are said to have been carved from the ivory of walrus teeth and fastened with gold wire. There is no evidence that he filled teeth.

An incident of interest in this connection: After the evacuation of Boston by the British troops in 1776 the friends of General Joseph Warren, killed at the battle of Bunker Hill, June 17, 1775, were informed where his body had been buried in a grave "with a person with a frock on." General Warren wore an artificial tooth. Identification was rendered doubly certain by Colonel Revere, who set the artificial tooth which he wore, and who recollected the size and kind of wire he used in fastening it. This, I think, is one among the first instances where a dental operation was convincing as evidence. In the same city the Webster-Parkman murder was proven by a gold plate found and identified by the maker as worn by the murdered man. Paul Revere served through the War of the Revolution, attaining the rank of lieutenant-colonel of artillery, and after its close established the Revere Copper Works, which are still in existence. He was a manufacturing jeweler previous to practicing dentistry. A fine specimen of his work, a silver tea-pot, was on exhibition at a late exhibit at the rooms of the Missouri Historical Society.

John Greenwood. John Greenwood is known to everyone in the dental profession, and to almost every native-born American, as the dentist for many years of George Washington. Mr. Greenwood was born in Boston in 1760, and was the son of Isaac Greenwood, the first practicing dentist in that city. His grandfather, Rev. Isaac Greenwood, was born in England, came to this country when a young man, held a professorship in Harvard College, teaching mathematics and natural philosophy, and was afterwards preacher in the

old North Church in Boston for many years. John attended the North School in Boston until thirteen years of age, when he was sent to learn the trade of cabinet-making with his uncle, Thales Greenwood, at Portland, Me. For two years he continued at this work, or until the battle of Lexington was fought. While here he learned to play the fife and served as fifer in an independent local company of which his uncle was first lieutenant.

The martial trend of everything at this time induced him, as he says, to elope, and he pulled out for Boston. Being unable to reach home, and without money, he enlisted in Captain Bliss' company as fifer at $8.00 per month. To shorten this sketch, it is necessary to eliminate much of interest, but it should be stated that young Greenwood took part in the battle of Bunker Hill, of which he gives a lengthy description. He afterwards served with Benedict Arnold in Canada, along Lake Champlain, and at Ticonderoga, fighting Indians and British, returning in time to take part in the battle of Trenton after his term of enlistment had expired. Returning home, after two or three months' rest he secured a position as steward's mate, with rating of midshipman, on the Cumberland, a privateer carrying eighteen six-pounders and crew of one hundred and thirty men. As privateersman and prisoner he served until the close of the War of the Revolution, with many escapes from danger and death. His younger brother, Clark Greenwood, at this time was practicing dentistry in New York, but is said to have discouraged John from the study of dentistry, so he commenced the manufacture of nautical and mathematical instruments, finally working into the practice of dentistry and employing his brother, among others, as his assistant. I have extended this sketch to show that Mr. Greenwood had some personality and was deserving of the recognition he received.

Since writing this sketch a clipping from one of our daily papers has attracted my attention: *"Washington's Mythical False Teeth.* George Washington's false teeth, which were supposed to have been made of ivory, are giving a certain class of freak historians about as much trouble as they must have given the venerable patriot who wore them," said one of the professors of the Smithsonian Institute to a *Washington Star* reporter recently. "Many times a year for several years this institution has been called upon to produce these mysterious teeth for the inspection of persons who insist that they

are here. Our matter of fact answers to these inquiries that Washington had no false teeth, or at least if he did, that they are not in the possession of the Museum, seems only to stimulate the inquiring mind to protest our statement. They proceed to give us authentic accounts of these teeth, and always conclude with expressing the belief that they must be in the Museum somewhere. Where or how the idea that Washington had false teeth originated is an unsolved mystery. That it is firmly believed by many is certainly a fact. There seems to be no authentic record of the father of his country possessing ivory teeth, and by a study of the bust we have of him, which was made but a few years before his death, there is no indication of an indentation along the line of the gums such as can be noticed in persons who have had their teeth drawn, even though they wear artificial ones. However, we will continue to answer the same questions in the same way many times in the future. According to some biographers, Washington lost his teeth during his service as commander in chief of the Continental Army, and had a set of ivory ones made. These teeth, it is also stated, gave him much trouble because they did not fit." The professor quoted above must be out of the same box with Maclay, the historian of the United States Navy. There is no fact better authenticated than that George Washington wore false teeth made by John Greenwood—some of which are still preserved.

James Gardette. Born in France in 1756, studied medicine in Paris 1773-1775, afterwards spending two years in hospital practice in London, when he was commissioned as surgeon in the French Navy. He resigned from the navy and took up dentistry at Newport in 1781, removed to New York in 1783, and to Philadelphia in 1784, where he continued in successful practice until 1829—forty-five years—when he returned to France, dying at Bordeaux in 1831. He was among the first to use gold foil instead of lead for filling teeth; the first to use flat clasps in the retention of plates, and has been credited with the first application of suction for retaining plates. An article on "The Transplantation of the Human Teeth," in which he discourages this practice, copied from the *Medical Recorder,* may be found in the first series of the *American Journal of Dental Science.* In the article referred to he speaks of Joseph Lemayeur (or Lemaire) as being in practice in Philadelphia.

Joseph Lemaire. While Dr. Joseph Lemaire has been accredited

as the first dentist to enter regular practice in America, it would seem that there were several others who were in practice previous to his arrival, among them Mr. John Woofendale, who came over in 1766. Mr. Woofendale was a student of Mr. Berdmore, who has been referred to before. Mr. John Greenwood in his memoirs speaks of his father as practicing dentistry in Boston at the beginning of the Revolutionary War, and he must have been before that time, as Clark Greenwood, brother of John, was in New York in practice when John first commenced business there as a nautical instrument maker after the close of the war in 1782. It would appear also that a Mr. Whitelock and a Mr. Baker were in practice at this early date in Philadelphia.

Dr. Lemaire advertised to transplant, replant and implant teeth (1784). He afterwards told Dr. Gardette that of all the one hundred and seventy teeth he had transplanted not one succeeded.

Josiah Flagg. Lemaire came over with the French army of Count Rochambeau in 1781, and from him Josiah Flagg, the first of the dentists of that name, obtained his instruction in dentistry. He later settled in Boston. A circular of Dr. Flagg's is extant in which he advertises "to transplant teeth, cure ulcers, fasten loose teeth, mend teeth with foil or gold, sew up hare-lips, make artificial teeth, fix gold roofs and palates, greatly assisting the pronunciation and the swallow. Sells by wholesale and retail dentifrices, tinctures, chew-sticks, masticks, teeth and gum brushes suitable for every age, complaint and climate." Dr. Flagg held a Major's commission in the American Army, and during the war of 1812 was taken as a prisoner to England, where while on parole he assisted Sir Ashley Cooper in his operations at Guy's Hospital.

Horace H. Hayden. Born Oct. 13, 1768. When 14 years of age he went to sea as a cabin boy. Two years later, being thrown on his own resources, he became an apprentice to an architect, which business he followed for eight years.. At this age—twenty-four—being in New York and needing dental services, he applied to Mr. Greenwood for treatment, and while in his hands determined to become a dentist. He procured books and instruments, and some years later established himself in Baltimore—1804. He took up the study of medicine and received honorary degrees from both the University of Maryland and Jefferson Medical College. In 1825 he delivered a course of lectures on dentistry before the medical

class of the University of Maryland. He assisted in the founding of the Baltimore Dental College, and filled the chair of Dental Physiology and Pathology. He was the first president of the American Society of Dental Surgeons, which was organized in 1840. This office he held until his death in 1844. He wrote a book on Geology and many papers on medical and dental subjects. He accomplished all this without regular education in these directions.

Leonard Koecker. He was born in Bremen, Hanover, in 1785, and in early life engaged in mercantile pursuits. His early acquaintance with a traveling Jew dentist turned his attention in this direction. He came to this country as a commercial agent, but failed, and about 1807 began the practice of dentistry in Philadelphia without any knowledge of the profession. His native ability and energy remedied many defects in that direction. Parmly, in relating Koecker's first case in Philadelphia, one of simple extraction of a tooth which caused him much embarrassment, says, "He grasped the tooth with an instrument, shut his eyes, turned his head from the patient, and made a strong effort which dislodged the tooth, he being meanwhile so excited that he knew not whether the tooth was out or the jaw broken. The patient assured the trembling operator that he had never before had a tooth removed so easily, and from that patient's influence his success commenced." He practiced in Philadelphia until 1822, when his health compelled a voyage to Europe, and he eventually settled in London, where he remained until his death in 1850. He had a very extensive and widely known dental practice. He published a work on Dental Surgery in 1826 which is even now frequently referred to.

Edward Hudson. Edward Hudson began the practice of dentistry in Philadelphia in 1805. He was born in Ireland in 1772, of Quaker parents. Being left an orphan at an early age, he was adopted as a son by his cousin, a practicing dentist of Dublin, and soon after entered Trinity College, his progress delighting his benefactor. Hudson pursued the practice of dental surgery in his cousin's office and perfected himself in the requirements of this profession. His political enthusiasm caused his arrest and imprisonment in Fort George, Scotland, until after the peace of Amiens. After being released he came to America. Dr. Eleazer Parmly says of him, "We are probably more indebted to his suc-

cess than to that of any other man for the importance which was attached at that period to operations which were intended to preserve the natural teeth in their natural state, for by the complete success attending the practice of this great man, the public were convinced that teeth could be saved instead of being extracted." I present a facsimile of a bill for services rendered by Mr. Hudson in 1825, which, considering the date, shows that he respected himself. Many dentists of to-day do not.

Dr. Eleazer Parmly. Born in Braintree, Vt., March 13, 1797. Died in New York, December 13, 1874. In an address delivered before the American Society of Dental Surgeons nearly sixty years ago, he gave an interesting account of his experiences as a dentist during the thirty years he had been an active member of or connected with the dental profession. The satisfaction expressed as felt at the advanced state of the profession at the time is almost amusing. To quote from the article—he says, "I shall leave it for those who hear me, especially for the younger members of the society, to make a comparison in their own minds between the embarrassments of that period and the facilities of the present day. In 1812 my brother, older than myself, became acquainted with Dr. Petrie, an English dentist, from whom I believe he obtained his first knowledge of operations upon the teeth. He soon after came to Boston, where he commenced practice, and had the good fortune to become acquainted with the warm-hearted Dr. Randall, to whose friendly interest he was indebted for a handsome letter in testimony of his zeal and ingenuity, which letter he keeps to this day as a sacred treasure. To the liberal commendation which the Doctor was pleased to bestow upon him in that letter, in additional to the professional information which he frankly communicated to him, my brother was chiefly indebted for his early success. In 1815 he proceeded to Montreal, where I joined him at the age of eighteen. He employed me at first in carving and manufacturing teeth from the tusk of the sea-horse. In the same year we both went to Quebec, where I saw for the first time a front tooth that had been beautifully stopped with gold by Mr. Waite of London. But I had no idea at the time how the gold was secured, or what gave it its firm-looking body, and its smooth, solid and polished surface. On leaving Quebec for the purpose of a tour through the western states of this Union, I did not leave behind me the recol-

lection of the beautiful operation that I had seen, and which to this day clings vividly to my memory. While at Pittsburg I saw a mouth that had been treated by Mr. Koecker, very differently from any I had before seen. I also saw there some teeth that had been filled by our worthy and esteemed President (Dr. H. H. Hayden). These two cases gave me an idea of filling teeth. In Lexington, Ky., I saw the mouths of two young ladies who had been with Mr. Hudson of Philadelphia, whose stoppings looked like the one I had seen in Quebec. Up to this time I had never seen any gold for stopping teeth. I here obtained some gold coin and took it to a silver-plater. He melted, hammered and rolled the coin, bringing it in his mill to a degree of thinness and pliability of which I had previously no conception. This gold I immediately began to use for stopping teeth, and but three years since I saw one of the teeth which I then stopped. In Lexington, Ky., I first saw a mineral tooth in the mouth of a French gentleman. This was an improvement upon the teeth that I was making from sea-horse and cattle teeth. In New Orleans I first saw a gold plate that had been struck on a model in London. All the plates that I had previously seen had been filed and bent into something like the form required. Soon afterwards (1820) I embarked for London, intending to find out how all these things were done. My first business was to purchase all the books on dental surgery that had been published in the English language. None of them gave information as to how these operations were performed, but all gave evidence of the benefits to be derived from them. The dentists all received me politely and conversed with me freely, both in London and Paris, but with the exception of Mr. Maury they failed to show me anything, but all wished me success. But for Mr. Maury's kindness I might have left Paris without having seen a complete dental cabinet."

Dr. Parmly practiced for four years in London, but was unable to find the party who manufactured the gold foil used by Mr. Waite, who was, as Dr. Parmly pleased to call him, "the Hudson of England." I have gleaned these few items to show the secretiveness exhibited up to the time of the organization of dental societies, accounting in this way for the entire lack of advancement during the three hundred preceding years. Dr. Eleazer Parmly was one of the organizers of the first dental society and of the first dental journal, and one of the makers of the dental profession.

Dr. Amos Westcott. Born in Herkimer Co., New York, in 1815. Died at Syracuse, N. Y., in 1873. Graduated as civil engineer from Rensselaer Institute in 1835, and in medicine from Albany Medical College in 1840. Located in Syracuse in 1841, where he lived and died. Dr. Westcott was for a time a professor in the Baltimore Dental College and an associate editor of the *American Journal of Dental Science.* Dr. Westcott's name has been associated with the discovery of the adhesive properties of gold foil. He contributed largely to dental literature, and is further celebrated as the father of the author of "David Harum."

Chapin A. Harris. So well known by his works, was born near the beginning of the 19th century, in the State of New York; began the study of medicine in 1820; took up dentistry after graduating in medicine, and at first practiced both callings. He organized the first dental college, helped to organize and edit the first dental journal, and was active in forming the first dental society. Wrote and translated numerous works, of which Harris' Principles and Practice of Dentistry is possibly the best known. He might well be called the father of dentistry.

Robert Arthur. Born July 22, 1819. Died June 22, 1880. Studied dentistry with Chapin A. Harris. Graduated from Baltimore College. Received the first degree of D. D. S. ever conferred. Taught in Philadelphia, Pa., and Baltimore colleges. Wrote numerous articles and works. Made known the use of adhesive foil in 1855. Wrote extensively on prevention of decay of the teeth. Recommended separating or "Arthurizing," and invented disks of corundum for the purpose.

Dr. Asa Hill. Born Nov. 20, 1815. Died Nov. 25, 1874. Dr. Hill was born, lived and died at Norwalk, Conn. He was a practitioner of great merit; a contributor to the *News-Letter* and *American Journal of Dental Science;* a member of the dental societies then formed, and the inventor and introducer of the stopping that bears his name.

Dr. Elisha Townsend. Born 1804. Died 1858. One of the most energetic and active dentists during his twenty-five years of practice. Organizer of dental societies, professor in dental colleges, and the originator of the well-known Townsend amalgam. The notices of his death show the high regard in which he was held by the entire dental profession.

Dr. Edward Maynard. Born in Madison, N. Y., April, 1813. Died May 4, 1891. Dr. Maynard was prominent as a dentist for over fifty years. Was one of the editors of the *American Journal of Dental Science.* He was at one time professor of Theory and Practice in the Baltimore College of Dental Surgery, and afterwards in the Dental Department of the National University at Washington, D. C. Dr. Maynard practiced his profession for some time in St. Petersburg, Russia, having as clients the imperial family and the nobility. He made many improvements in dental instruments. Was the inventor of the first magazine gun—the Maynard rifle. He was introduced to many of the dentists attending the Medical Congress held in Washington in 1887.

Dr. William H. Dwinelle, A. M., M. D., D. D. S. Born in Cazenovia, N. Y. Died in Cazenovia, February, 1896. For upwards of fifty years a dental practitioner of eminence. Inventor of numerous instruments and appliances, among them the jack-screw as applied to regulation of teeth. Writer of ability and one of the editors of the *American Journal of Dental Science.* During his time was among the foremost men in the dental profession, and active in dental and other societies.

Dr. Thomas B. Gunning. One of the first to use vulcanized rubber in the manufacture of interdental splints. Was made famous by his successful treatment of Secretary Seward after his attempted assassination in 1865.

Dr. S. C. Barnum. Born in Sullivan County, N. Y. Died in New York City, Dec. 24, 1885. Made known through Dr. J. W. Clowes in June, 1864, to the dental profession the benefits to be derived from the use of the rubber dam. The use of this device has revolutionized the practice of dentistry. Dr. Allen of Kansas City has greatly added to its usefulness by the illuminated surface which he has given it.

Dr. John M. Riggs. Born in Seymour, Conn., Oct., 1810. Died in Hartford, Conn., Nov., 1885. Dr. Riggs practiced dentistry in Hartford, Conn., for forty-five years. He is credited with having performed the first surgical operation under an anesthetic—extracting a tooth for Dr. Horace Wells, Dec. 11, 1844. Also described and instituted treatment for pyorrhea alveolaris (Riggs' disease). Was a member of Connecticut Valley, and vice-president of Southern Dental Association.

Dr. Gardner Quincy Colton. Born in Vermont in 1814. Died in Holland in 1898. Well known in connection with the introduction of nitrous oxid gas in extracting teeth, and the Colton Dental Associations in various cities, established for the administration of gas for the purpose of tooth extraction.

Dr. Horace Wells, who first discovered anesthesia. In this connection we have in the last three pictures Dr. Wells, who was the patient upon whom the first surgical operation under an anesthetic was ever performed; Dr. Riggs, the operator who extracted a tooth for Dr. Wells, and Dr. Colton, who administered the anesthetic—nitrous oxid gas—this on December 11, 1844.

Dr. James Taylor, M.D., D.D.S. Died June 12, 1881. Dr. Taylor was one of the active agents in founding the Ohio College of Dental Surgery. President of the American Dental Convention in 1857. Member of the Mississippi Valley Association of Dental Surgeons from its beginning to the time of his death; at one time editor, proprietor and publisher of the *Dental Register,* and during his whole career actively engaged in advancing the profession of dentistry.

Dr. Geo. Watt. Born near Xenia, Ohio, 1820. Died at Xenia, February, 1893. Dr. Watt, lineal descendant of James Watt, who perfected the steam engine. Graduated in medicine and practiced that profession until 1852. Studied dentistry, graduating in 1854. Professor of chemistry in Ohio Dental College. Surgeon in army during War of the Rebellion. Editorially associated with *Dental Register of the West.* Editor *Ohio Journal of Dental Science.* President of American, Ohio State, Mississippi Valley and other dental societies. Honorary member of this Society.

Wm. H. Morgan, M.D., D.D.S. Born in Kentucky, Feb. 22, 1818. Died at Nashville, Tenn., May 16, 1901. Dr. Morgan was a practitioner of dentistry for over fifty years, and was renowned as an operator. Active in dental associations and in everything that elevated dentistry. Organized the Dental Department of Vanderbilt University, and was its dean for years. President of American, Southern, Mississippi Valley, Tennessee State and other dental societies. An active worker in the church, etc.

Dr. Benjamin H. Catching. Born at Georgetown, Miss., 1848. Died at Atlanta, Ga., November, 1899. Dr. Catching was well known as the editor of "Catching's Compendium," and also of the *Southern*

Dental Journal and the *American Dental Weekly.* He was always active in societies and in any work that benefited the profession of his choice.

Dr. Thomas W. Evans. Born in Philadelphia in 1823. Died in Paris, France, in 1897. Dr. Evans, the world-renowned dentist and philanthropist, received a common school education, and at the age of fourteen entered as an apprentice the employ of Joseph Warner, a gold and silversmith. A few years later he became a student of Dr. J. D. White, with whom he remained two years. He graduated from the Jefferson Medical College, and practiced dentistry in Maryland and Pennsylvania. In 1848 he went to Paris, associating himself with Dr. C. S. Brewster. His eminence in the profession was soon to be acknowledged, and his career from this time is well known to us all.

Dr. Thomas L. Buckingham. Born in Delaware, March, 1816. Died in Philadelphia, September, 1883. Practiced dentistry in Philadelphia for nearly forty years. Was professor of Mechanical Dentistry in the Philadelphia College of Dental Surgery during its four years of existence. Then as professor of Mechanical Dentistry and afterwards Chemistry he taught in the Pennsylvania College of Dental Surgery up to the time of his death. Was active in societies, in all of which he was prominent.

Samuel Stockton White, D.D.S. Born in Pennsylvania, June, 1822. Died in Paris, France, Dec. 30, 1879. It is unnecessary to state to an assembly of dentists that Dr. S. S. White was the founder of the S. S. White Dental Manufacturing Company, and that for years his influence was great in advancing the dental profession along progressive lines.

Dr. James W. White. Born in Pennsylvania, September, 1826. Died in Philadelphia, May, 1891. Dr. White as editor of the *Dental Cosmos* and President of the S. S. White Dental Manufacturing Company, as well as from his numerous contributions to the literature of the dental profession, is well known to every student of dentistry. His every effort was for the advancement of the profession.

John De Haven White, M.D., D.D.S. Born at Lancaster, Pa., August, 1815. Died at Philadelphia, Dec. 25, 1895. Dr. J. D. White was one of the organizers of the Pennsylvania Association of Dental Surgeons; an organizer and professor in the Pennsylvania College

of Dental Surgery; editor of the *Dental News Letter* and *Dental Cosmos,* and a dentist of excellent standing in Philadelphia for many years. Active in everything tending to advance the dental profession.

John Hugh McQuillen. Born in Philadelphia, February, 1826. Died in Philadelphia, March, 1879. Dr. McQuillen was a professor in the Philadelphia College of Dental Surgery, afterwards dean and professor in the Philadelphia Dental College; editor of *Dental Cosmos,* and president of the American and other dental associations. An excellent operator and active in all advances of the profession.

Dr. James Edmund Garretson. Born in Delaware, October, 1828. Died October, 1895. Dr. Garretson commenced the study of dentistry in 1850, graduated in 1856, and in medicine in 1859. He was the first to make oral surgery a special branch of surgery. He contributed to the dental journals from the time of the *News Letter.* Wrote numerous works, the principal of which is his "System of Oral Surgery."

Dr. Royal William Varney. Born in Ohio, October, 1839. Died at Savannah, Ga., April, 1872. Dr. Varney was an assistant surgeon during the War of the Rebellion. Settled in New York City after its close. Was the originator of the Varney Mallet Pluggers, and one of the finest operators the country has ever known.

Charles J. Essig, M.D., D.D.S. Born in Philadelphia, July, 1841. Died in Wallingford, Pa., December, 1901. Dr. Essig was a graduate of Jefferson Medical and Philadelphia Dental Colleges, and a professor both in the Philadelphia Dental College and Dental Department of the University of Pennsylvania. His work on Dental Metallurgy, also the American Text-Book of Prosthetic Dentistry, which he edited, are both well known.

Dr. Thomas H. Chandler. Connected with the Harvard Dental School from its inception to the time of his death in 1895. He held the deanship for twenty-one years, and the love and respect of both students and faculty during his whole career.

Marshall H. Webb, D.D.S. Born in Chester County, Pa., October, 1844. Died at Lancaster, Pa., January, 1882. Was a graduate of the Philadelphia Dental College in 1867. Was a member of numerous dental societies and an operator of marked ability. His demonstrations before the different dental societies illustrating his methods of

contour work were always interesting and instructive. His writings were an addition of value to dental literature.

Dr. Edwin James Dunning. Born in New York State, July, 1821. Died at Cambridge, Mass., March, 1901. Dr. Dunning, student of Dr. Arnold Westcott, afterwards an assistant of Dr. Eleazer Parmly, practiced in New York for twenty years, and at one time filled the chair of Operative Dentistry in the New York College of Dentistry.

Frank Abbott, M. D. Born in Maine, September, 1836. Died at New York, April, 1897. Dr. Abbott was for years prominent in the dental profession; dean of the New York College of Dentistry; president American and numerous other dental societies; writer of several works on dental subjects.

Wm. H. Atkinson, M.D., D.D.S. Born in Pennsylvania, January, 1815. Died in New York, April, 1891. Dr. Atkinson was probably more widely known in the profession during his long and active career than any other man in it. He was a fluent talker, an excellent operator, and enthusiastic in everything he undertook. He was instrumental in introducing the mallet for condensing cohesive gold, and a great worker in dental societies, in many of which he held the highest office in their gift.

M. S. Dean, D.D.S. Born at Pittsfield, Vt., 1825. Died at Chicago, 1882. Dr. Dean first took up the study of medicine and afterwards that of dentistry. He practiced dentistry in Canada, Ohio and Michigan, afterwards locating in Chicago, where he continued for nearly twenty years. He was active in organizing this Society and served as its president. Was twice president of the Chicago Dental Society, and held this position in the American Dental Association. His contributions to the literature of the profession were valuable, and his translation with notes of "The Dental Follicle," by Legros and Magitot, is among the works which are in active request at this time.

Dr. George H. Cushing. Born in Providence, R. I., 1829. Died at Los Angeles, Cal., May 25, 1900. Dr. Cushing, so well known to us all, was president of the American, Illinois State, Chicago and other societies, and secretary for years of the American and National Dental Associations. He spent a long life in the practice of dentistry and for the advancement of that profession.

Dr. Walter Webb Allport. Born in New York State, June, 1824. Died at Chicago, March, 1893. Dr. Allport first studied medicine,

afterwards took up dentistry, and graduated from New York Dental College in 1853. Was prominent in the dental profession as an operator, and was at all times active in its advancement. Was president of the American Dental Convention, the American and Mississippi Valley Dental Societies, and editor of the *People's Dental Journal* for two years. Practiced in Chicago for almost forty years.

Dr. A. W. Freeman. Born at Brookfield, Vt., October, 1829. Died at Normal Park, Ill., Feb. 23, 1899. Dr. Freeman graduated from Dartmouth College in 1854. Afterwards taught school at Randolph, Vt., and Rockford, Ill., for several years, being principal of high school. Moving to Chicago in 1859, he commenced the practice of dentistry, which he followed for forty years. As an active member in dental societies he stood for everything that was good.

Dr. John Joseph Ravenscroft Patrick. Born in Liverpool, Eng., in 1828. Died in Belleville, Ill., in 1865. Dr. Patrick was the son of a physician, and at one time thought of following in his father's footsteps, so he first studied medicine, then served an apprenticeship as a jeweler, and finally took up dentistry, studying with his brother Hugh. Dr. Patrick was professor in the Missouri Dental College, and the Iowa State University, Dental Department. Was a writer and inventor, and a member of the Illinois and Missouri State Dental Societies and the American and other associations. His crown machine and regulating appliances were ingenious devices. Was vice-president of this Society 1882-83.

Andrew M. Leslie, D.D.S. Born in Scotland. Died in Memphis, Tenn., of cholera, November, 1866. Dr. Leslie graduated from the Ohio College of Dental Surgery in 1847, practiced in Cincinnati until 1856, when he moved to St. Louis and established the Missouri Dental Depot. Dr. Leslie was active in forming the St. Louis Dental Society and was its secretary for a number of years. He also assisted in organizing the Missouri Dental College.

Dr. Henry E. Peebles. Born in Virginia in 1812. Died in St. Louis, Feb. 14, 1871. Dr. Peebles was an active member of the American, Western, Missouri and St. Louis Dental Societies, and an honorary member of this Society. He contributed numerous articles to the dental journals, those on correcting irregularities of the teeth being specially interesting at that time.

Dr. Isaiah Forbes. Born at Albany, N. Y., 1810. Died at St.

Louis, 1885. Dr. Forbes came to St. Louis in 1837 and found but two dentists in the city. He was active in societies, city, state and national, filling with honor every position to which he was assigned. As an honorary member of this Society he was active in attendance and work for the common good.

Homer Judd, M.D., D.D.S. Born in Berkshire Co., Mass., March 29, 1820. Died in Upper Alton, Ill., May 20, 1890. In his early years taught school in Kentucky and Missouri; afterward studied medicine, graduating from the Berkshire Medical College in 1847. Surgeon of an emigrant train crossing the plains to Santa Fe, N. M., in 1849. Filled the first teeth ever filled in the territory. Afterwards practiced medicine and dentistry in Warsaw, Ill. At the breaking out of the War of the Rebellion served as acting assistant surgeon on hospital steamers on Mississippi river. Was appointed surgeon of the 40th Mo. Vols., and was at battles of Nashville and Spanish Fort. Served until after close of war. Then commenced practice of dentistry in St. Louis. Organized the Missouri Dental College, and was president of St. Louis, Missouri and American Dental Societies, and an active and honorary member of this Society and various medical societies; also member of Illinois State Board of Dental Examiners.

Dr. William Henry Eames. Born at Auburn, N. Y., Aug. 23, 1828. Died at St. Louis, March 29, 1894. Dr. Eames studied medicine at Ann Arbor, Mich., and graduated in dentistry from the Ohio Dental College in 1853. He located in St. Louis in 1862, remaining in active practice up to within a few days of his death, or for over thirty years. The Doctor was one of the organizers of the Missouri Dental College, and remained an instructor in the school up to the time of his death. He was a member of the American Dental Association, and had been president of the Missouri State, city and other dental societies. Honorary member of this Society. It is not necessary to speak here of the genial nature of Dr. Eames.

Dr. Henry S. Chase. Born in Vermont, March, 1820. Died in Benton, Mo., January, 1898. Dr. Chase graduated in medicine. Afterwards attended the Baltimore Dental College and engaged in dental practice. Was a professor in the Missouri Dental College; was editor of the *Missouri Dental Journal;* member of State and American Dental Associations. An honorary member of this Society. Was the first to use a local anesthetic in preparation of

teeth for filling—this in 1850 and '51 (see *News Letter,* Vol. IV, page 23).

Dr. William N. Morrison. Born Ohio, May, 1842. Died, December, 1896. Dr. Morrison was a graduate of the Ohio College of Dental Surgeons, president of the Missouri State and St. Louis Dental Societies, honorary member of the Illinois State Dental Society. First made gold crowns, which he described in 1869. Wrote many articles on transplantation and replantation of teeth and other subjects. An excellent operator and a mechanical dentist of more than ordinary skill. Contributed in many ways to the advancement of dentistry.

Dr. Henry J. McKellops. Born near Syracuse, N. Y., 1823. Died at St. Louis, April, 1901. Graduate of Ohio Dental College. Member and first president of Missouri State Society. Also member of St. Louis, American, Southern and National Dental Associations, and president of all except the last. Widely known as an operator, always in attendance upon the different society meetings, and probably personally known by more dentists than any other man in the profession. Honorary member of this Society.

Dr. Christopher W. Spalding. Born in Rhode Island, 1814. Died at Riverpoint, R. I., June, 1896. Dr. Spalding in the early years of his practice was intimately acquainted with Drs. Dwinelle, Westcott and others of that coterie of leading dentists. He came to St. Louis in 1849, where he continued in practice for many years. He was president of the American, Mississippi Valley, Missouri State and St. Louis Dental Societies; Editor of *Missouri Dental Journal* and the *Archives of Dentistry,* and connected with the Ohio and other dental colleges.

Dr. Edgar Park. Born in Wainfleet, Ontario, 1840. Died in Middleton, N. Y., 1892. Dr. Park was the first secretary of this Society, 1865-66. Was secretary of the American Dental Association; president Missouri State and St. Louis Dental Societies. Was among the first to restore teeth by building up with gold foil, and one of the best operators of his own or any other time.

In closing I wish to call your attention to this fact—that everyone whose portrait I have presented this evening was an active agent in advancing the dental profession. Since the formation of dental societies they have been among the foremost in disseminating the knowledge they gained from practical experience. From their skill

we have advanced in methods of manipulation, and from their investigations we have been able to establish ourselves as a recognized profession. Another thing you will notice—that advancement seems to come from different centers at different times, changing from one section of the country to another.

I wish to express my obligations to Dr. Chas. McManus of Hartford, Conn., for several of the photos and engravings which I have used in getting up slides, and for information which he has kindly furnished me.

Discussion. *Dr. G. V. Black,* Chicago: These are the names of our illustrious dead. I cannot well undertake to discuss this paper in the more serious sense in which it presents itself, so prefer to recall some of the men and speak of them in a lighter strain.

John Tomes. I believe he did more for the dental profession than any other man who has ever lived, for he made us acquainted with the minute anatomy of the teeth, and opened up the way to a knowledge of the whole subject of dentistry. He is known in this country only through his writings, but he is revered in England for his wonderful force of character and for the influence his personality exerted in building up the dental profession.

Chapin A. Harris. I would say of Harris in America as I might have said of Tomes in England—that the dental profession grew up around him. With his associates he founded the first dental school, and he separated dentistry from medicine and started it upon a career of its own. His influence had much to do with the publication of a wonderful journal of his time, and men subscribed for from five to fifty copies each at $5.00 a year, in order that the journal might thrive. How many do that to-day? This illustrates something of the power of the man in that day when dentistry was young.

Robert Arthur. He wielded a great influence over dentistry by the study he gave to the surroundings of decay. His particular style of cutting teeth so as to place self-cleansing surfaces, and thus prevent the recurrence of decay, has fallen into disuse, but his work attracted the attention of the profession to the subject. He was practically the first man to introduce cohesive gold foil.

Dr. Watt. He was a good debater and a strong writer. Although he wrote well upon other subjects, I remember him best for his papers on chemistry.

Dr. Morgan. He was a man of wonderful force of character, of

excellent judgment, a skillful operator and one of the good men of the profession.

S. S. White. We know him of course as a dealer in dental goods, but those who came into close contact with him knew quite another side. He was a man of very broad knowledge and of sterling character.

Marshall Webb. It was certainly a keen regret to those in the profession who knew him that he should have died so young. He was a splendid young man, and one of the most brilliant that we have ever known. He had studied caries and the teeth very closely, and had he lived longer he would undoubtedly have put his thoughts into language that would have impressed the profession much more than his mere operations could ever have done.

Dr. Atkinson. He was widely known through his wonderful power of impressing men by the use of language. He and I had many a tiff, as in society meetings we generally disagreed pretty strongly.

M. S. Dean and Geo. H. Cushing. I always associate these two men, and during the life of Dean they were seen much together. It was about these two that the Illinois State Dental Society grew up. We might say that Dr. Cushing was its father. We revere him not so much for what he has written, but for the influence of his noble character.

Dr. Patrick. On account of some peculiarities in his character he never showed up for what he was worth. Furthermore, he was stronger in other lines than in dentistry. He would not brook opposition, and this prevented his being as well thought of as he deserved.

A. M. Leslie. Perhaps few of us remember him, as he died in 1866. He was a genial man and did some good work, among other things, publishing a dental journal.

Henry Peebles. Perhaps no man in the early days of dentistry attracted me more than he did. I always felt that I could trust him or go to him with any question. He was genial, kind-hearted and earnest.

Dr. Forbes. He was a man of sharp, terse speech. I remember an incident which occurred when rubber dam was first brought into use. In those days we had a great deal of difficulty in fastening it onto the teeth. I was describing before a society meeting a

peculiar knot that I said would never slip, and Dr. Forbes took the wind out of my sails by saying, "Better let it slip a time or two."

Dr. Judd. Here was a man who worked too hard, studied too much, and who injured himself by his devotion to the profession. He had a lucrative practice in St. Louis that was ruined by the terrible panic in the early seventies. He was one of nature's noblemen. I always associate him and Dr. Eames, and they worked much together. Dr. Eames was a true, earnest man.

Dr. McKellops. Perhaps he is so well known to us that it is needless to speak of him. He was very successful in practice, a wonderful operator and a true Southern gentleman. When he started his practice patients were few and far between, so to bring in more patronage he put his smallest fee for filling a tooth at $10, and in a short time had a lucrative practice. This illustrates somewhat his impulsive character.

Dr. J. N. Crouse, Chicago: I would speak of only two men, namely, Drs. Dean and Cushing. I probably knew them more intimately than anyone here, because I practically lived with them for several years. Dean did not appear so active, but he was really the guiding spirit among us. He was one of the cleanest, most unselfish men I ever knew. He had heart trouble and always feared he would die in the night. He was a bachelor, and years before his death made me promise to personally look after his burial. He was found dead in bed, just as he had predicted he would be, and the funeral was held at my house.

Dr. Edmund Noyes, Chicago: I did not know Dr. Dean as Dr. Crouse did, but I admired him greatly. Whenever a quarrel was imminent or a discussion began to grow acrimonious in a society meeting, he would say a few words and bring everybody together in peace. He was essentially a peacemaker, and a man of great strength of character, of fine education, and of much refinement of thought and feeling.

Dr. F. H. McIntosh, Bloomington: I personally loved Dr. Cushing and revere his memory. I would be an ingrate indeed if I did not speak a word in honor of my old dean, Dr. J. E. Garretson. As you looked into his kindly face you could not help but know that young men under his teaching would be benefited in more ways than one. He was a writer of many helpful books.

MATRIX IN COMPOUND-APPROXIMAL GOLD FILLINGS.

BY ELLIOTT R. CARPENTER, D.D.S., CHICAGO. READ BEFORE THE ILLINOIS STATE DENTAL SOCIETY, AT SPRINGFIELD, MAY 13-15, 1902.

It has been often said that there is nothing new under the sun, and in a measure the old saw is correct. There is very little that is new to everybody, but by virtue of the fact that no one man is capable of knowing everything, there are probably some in this body to whom part at least of this paper may be new, and to them I gladly commend our old friend, the matrix, in compound-approximal gold fillings.

There are many varieties of matrices on the market, the principal ones being the Jack, Brophy, Miller, Woodard, Guilford, Ivory Retainer Nos. 1, 2 and 3, Creager, Ladmore-Brunton, Meister and Powers. Every operator will use the one most adaptable in his hands. Personally, I prefer the Ladmore-Brunton Matrix, made by Ash & Son of London. I find it the most adaptable to all classes of compound-approximal cavities, irrespective of whether the tooth to be girdled is normal or abnormal in its shape and contour. This matrix is very rigid when properly adjusted, and not nearly so cumbersome and in the way of the operator as many of other designs. It is composed of a screw clamp, nine spring-steel bands, and a spiral or flexible wrench to draw the bands taut around the tooth to be operated upon. The screw clamp or band-holder consists of a square-headed screw running through two small jaws, each having an extension hook which grasps the band at either end at point where hole is punched. A smooth round bar is brazed into one jaw and slides freely through the opposite jaw in a parallel line with the screw, which keeps the jaws from buckling and forces them together at the same angle when the screw is turned up. I do not use the bands which come with the set except as patterns, since I find them too thick and unyielding. The best band material I have found is the bronze metal manufactured by Dr. A. C. Hewett of Chicago. It is capable of being rolled very thin and is exceedingly tough, which makes it an ideal material for matrix bands. It is my practice to have a lot of these bands made up of different lengths, widths and shapes as blanks ready to punch the holes in the ends when cavity is prepared and measurement is made of the tooth to be filled. Right here let me add, when making up extra bands or blanks, cut the first third of the gingival edge of the band with a convex curve, so that the

band at this point will reach well down below the cervical margin, and the last two-thirds of the gingival edge of the band with a concave curve, so when the band is drawn taut it will hug tightly the neck of the tooth and flare toward the occlusal edge, which allows space within the band for proper contour of filling.

The advantages of the matrix are many. Large operations may be performed with a great saving of time, and much less space is required. The filling is practically finished at the cervical margin when the matrix is removed. It is not necessary to separate for several days before operating, so the teeth are not sore and tender to the touch, consequently it is a humane method to pursue, and it is seldom necessary to use finishing strips, which are exceedingly irritating to most patients. To hypersensitive and very nervous frail women, and also for children, I think the matrix operation positively indicated.

For the sake of convenience, and to avoid confusion of terms, we will consider compound-approximal cavities in molars and bicuspids of the inferior maxilla only. Dr. C. N. Johnson in his late work, "Principles and Practice of Filling Teeth," has, in his chapter on cavity preparation, given us the most comprehensive, scientific and practical article the profession has ever received, and it is not my intention to crib from his book the underlying principles of cavity preparation which he has so tersely and intelligently given us, but I will merely add a word of warning—do not make a long bevel on enamel margins at any point where they are brought in contact with the matrix band, as the result will be the formation of a V-shaped space, into which it will be found difficult to properly and surely condense gold, but make the bevel short, so that it and the band will produce almost but not quite a right angle.

The rubber dam being adjusted, select a band of proper length and curve to conform to the tooth and its ultimate contour. Slip the narrow end of the band between the teeth opposite the small occlusal end of the cavity, drawing the large end of the band around the tooth lingually and over the approximal margins of the cavity already prepared, and clamp tightly to place, holding the cervical edge of band in close contact with the cervical margin of cavity while the clamp is being tightened, so as to make sure the dam is not caught between the cervical edge of band and that of the cavity margin. Now trim a triangular-shaped wedge to fit the interdental space,

making the wedge about a half inch in length, and force from the lingual side well to place, separating in this way enough to overcome a little more than twice the thickness of the band. Now carefully go over the enamel margins in contact with the matrix with fine right and left exploring instruments to make certain that the wedging process has not in the slightest degree crushed or marred them. Having thoroughly wiped both cavity and matrix with carbolic acid and alcohol, dehydrate thoroughly, and the cavity is ready for insertion of gold. I find a small clamp mouth mirror, attached in starting these fillings, of great service and convenience in lighting up the bottom of the cavity, as it allows the operator the opportunity of using an assistant instrument in the left hand to keep filling from rocking until gold has been well wedged and condensed to the buccal and lingual walls. I use large, coarse, serrated pluggers and unannealed gold pellets of large size, malleting them well home after the cervical border has been covered by a sufficient cushion of gold to admit of thorough condensation without possible injury to the margin. After condensing the gold at the cervico-buccal and cervico-lingual angles, I use single and double-lined pluggers of the bayonet-shaped type, and where space and position will admit, single-lined chisel-shaped pluggers, working my gold well up from the center onto the lingual and buccal under-cuts with double-lined rocker-shaped pluggers.

Keeping my filling hollowed out or cup-shaped in the center, I now build up about two-thirds towards the occlusal surface with unannealed pellets. Two-thirds of the approximal wall of the filling now being completed, I start with smaller pellets of slightly annealed gold in the occluso-buccal and lingual under-cuts, malleting well into the unannealed gold until I meet in the center, completing the operation from now on with more heavily annealed gold until I have reached the top of the matrix and into the occlusal portion of the cavity, taking great care to condense the gold firmly against the matrix and forcing it hard enough against the approximating tooth to loosen the wedge. When this is accomplished you may be sure that the resulting gold contour will be sufficient to more than overcome twice the thickness of the band, and to allow enough for finishing the knuckle point without leaving a space when filling is polished and the matrix removed. It is my practice to burnish over the occlusal margins with a rotary engine burnisher well armed with

soap suds, which aids condensation and obviates plating the burnisher, which tends to tear and drag off portions of gold at the margins. Now remove wedge and matrix and burnish thoroughly over the gingival margin with right and left sickle-shaped burnishers, and it will be found that the soft gold, which has been forced well over the margins at this point, can be rubbed down hard, smooth and shiny, and seldom is it necessary to use finishing strips at this point of the filling. I now adjust a double-bowed Ivory separator, tilting it so that the anterior bow rests on the occlusal edges of the teeth, and slip a small piece of wood under the distal bow, which will allow the jaws or points of the separator to settle to, but not impinge upon, the gum. This can be regulated to a nicety according to the thickness of the piece of wood placed under the distal bow. The separator is now turned up gently until just enough space is produced to admit a coarse ruby or sandpaper disk, and it goes without saying that all disks should be well vaselined and revolved in the engine buccally when working on the buccal margins, and lingually when working on the lingual margins. In other words, the disk should always be revolved in the direction to draw the gold over the margins and never away from them, and right here I want to say that I thoroughly believe the margins of many well inserted fillings have been seriously injured by either unintelligent or careless disking. With a sweeping side movement of the handpiece the coarse disk is made to trim off the buccal and lingual excess or overhanging gold. Fine sandpaper and cuttle-fish disks are now used lightly over the knuckle or contact point until the margins and all of the approximal surface of the filling are perfectly finished, ending up with a drawing or pushing movement of the disk (according to whether the approximation be anterior or posterior) from the point just above the knuckle to the occlusal surface. This will round the filling from contact point up and onto the occlusal surface. The occlusal margins may be now finished with stones, burs or disks, according to each operator's fancy. The separator has been left on until finishing is completed, because the tooth being wedged tight against its neighbor is less tender to grinding upon its occlusal surface. Now remove separator, allowing tooth to spring back to its normal position. It will be found upon passing the floss between filling and tooth approximating it that the contact or knuckle point has been perfectly restored, which will preclude entrance of food.

Discussion. *Dr. C. P. Pruyn,* Chicago: The essayist stated that the sandpaper disk should always be revolved toward the edges of the filling and not away from them, for fear of drawing the filling material away from the margins. I wish to state very emphatically that any filling which can be injured in this way would better be injured and then removed.

Dr. L. S. Tenney, Chicago: The essayist stated that in the preparation of cavities where we are going to use a matrix we should avoid too long a bevel at the point where the margin of the tooth is to come in contact with the matrix. Now all cavities should be prepared upon certain recognized scientific principles, and should not be made to accommodate the matrix, but the matrix should be adapted to the cavity. If we cannot use the matrix with the margin properly prepared we would better dispense with it altogether. We know the extent to which enamel margins must be beveled in order to secure the greatest permanency and strength, and this must be done at whatever cost. Personally I rather condemn the use of the matrix.

Dr. J. N. Crouse, Chicago: It is poor practice to use a matrix when filling teeth with gold. Look at those tubes that were filled in the clinic with amalgam and see how many operators broke the edges of tempered steel tubes. With that method of condensing gold at the cervical margin places would be chipped and not seen at the time, but they would later work harm. I am a firm believer in the use of non-cohesive gold cylinders at the cervical margin for starting all proximal cavities.

Dr. T. W. Pritchett, Whitehall: I use steel-handled gum lancets of various sizes and shapes, with very sharp edges, for shaving down the overlapping edge of a gold filling near the margin. These instruments are even more valuable for carving and shaping fillings of other materials.

Dr. Edmund Noyes, Chicago: I don't use a matrix very much, being somewhat afraid of it. Furthermore, when using one it has always seemed necessary to get over the border of the cavity so that the gold could be wedged down between the cavity border on one side and the matrix on the other, in the same way that you would get gold against the two sides of a narrow fissure. There is more surplus to be disposed of after filling a cavity with a matrix than when it is not used. A matrix is a help in distal cavities which are broad and shallow at the cervical margin. When the filling is finished it must

be polished, especially at the cervical margin, and I don't know anything better for the purpose than strips with the same degree of cutting quality as the disks with which the other portions of the same filling have been polished. By using successively finer grades, and finishing with first pumice stone and then chalk carried upon silk tape, all scratches will be removed and you will have a finely polished surface.

Dr. Carpenter, closing discussion: It was distinctly stated in the paper that the first third of the cavity was filled with non-cohesive gold, and I still maintain that a disk revolved away from the margin of that filling is apt to tear it, no matter how well it is condensed. I stated that I followed as closely as possible the scheme of cavity preparation formulated by Dr. Johnson, with the slight modification of a shorter bevel, and in so doing I do not think that I have violated the principles of proper cavity preparation. I have been using the matrix exclusively for nine years, and many fillings nine years old are still doing good work at the cervix. I always condense the gold with a mallet at the cervix and it can be done so thoroughly that there is little more need for the burnisher after the matrix is removed.

PRELIMINARY DENTAL EDUCATION.

BY M. R. HARNED, D.D.S., ROCKFORD, ILL. READ BEFORE THE ILLINOIS STATE DENTAL SOCIETY, AT SPRINGFIELD, MAY 13-15, 1902.

The idea of writing a short essay upon this subject was suggested by a discussion which occurred during the meeting of this society held at Rockford last year. The point under discussion was the rule, with its perplexities, existing between reputable dental college faculties, which enables a student who has taken one year's work and passed examinations thereon in one college, to demand entrance to the next year's course in any other college without examination.

This naturally raises the questions of preliminary qualifications, natural adaptation, moral character, thoroughness of examinations, desire to get students, and even the qualifications of examiners, together with many others. The discussion indicated an attempt to eliminate competition in a very crude way which was highly unsatisfactory.

This discussion, together with the rivalry among dental colleges, the strong competition for students, the sharp sparring and bicker-

ing between members of different college faculties, which is neither interesting nor instructive, helpful nor dignified, has prompted me to write this paper, which is intended to be somewhat philosophical and critical, but in no sense personal.

By preliminary dental education I mean all education previous to independent practice, to distinguish it from dental practice and society work, which is all educational. And I wish first to go briefly into the philosophy of general education as it is a part of and preparatory to dental education. All philosophy to be true must go to the root of things, must be based on fundamentals, hence I start with a quotation from a friend, which has never appeared in print so far as I know. It is this: "All true philosophy must be based upon a true understanding of economics." This is because the first question to be settled by all people individually or collectively is "how to live," so all philosophy, whether religious, ethical, political, educational or what not, will be modified by the philosophy as to "how to live."

If we start with the proposition, "Every man for himself and the devil take the hindmost," we allow selfishness to dominate, and religiously we gain heaven for ourselves if we have to send all the rest of the human family to hell to achieve it; ethically we will be selfishly warped, unjust; politically we will go in for emolument and spoils; educationally, to gain advantage by superiority of opportunity over our fellows. If, on the other hand, we start from an understanding of economic principles, which recognizes the other fellow's right to live, and an equal right to opportunities, we eliminate selfishness, and religiously we gain heaven by helping others to gain it; ethically we will love and practice justice; politically be true to our principles; and educationally we obtain a higher ideal of its benefits which we gladly give to others. Your consideration is asked of its influence educationally.

The dominant American idea of "How to live" is expressed by David Harum in his version of the Golden Rule: "Do unto the other feller the way he'd like to do unto you—an' do it fust." The result is, that if you ask the average man why he is giving his son an education, his reply will be, "So he won't have to work as hard as I do." Is it true that education is to prevent men from working, or disqualify them for labor? In many cases it does, and this is largely due to the fact that they and their fathers started with the

wrong idea of how to live. Then there is the idea of entering the better classes, the exclusive class, which lives from the work of others, in which are those who live by their wits, brain work, looking after political emolument and special privileges, regulating prices of produce, manipulating stocks, wrecking corporations, and other similar pursuits.

If every man could realize that it is his duty to work, otherwise the burden falls upon a brother; that the greatest of pleasures come from work, from rendering faithful service; that work is our source of health; then education would no longer be given or accepted with the idea of escaping work, but of being able to render more efficient service, and getting more pleasure from same. If every man could have this ideal of education and its uses, an individual would not enter the profession of dentistry or any other because he liked the hours, or because of the social standing, or because he had a father rich enough to give, or a friend foolish enough to lend him the money. On the contrary, he would enter it because he felt this the best way to render service to his fellow men and solve the problem "How to live." A man's work should in some way be an expression of part if not all of his ideals. This is what Dr. Cormany calls success. To someone else it might be failure, because it does not make vast wealth, nor gain control over the lives of others. We are so apt to reckon success by the amount of power over others.

Man's work begins, so far as we know, at his birth, first educating his parents and then expressing himself. Froebel struck the keynote of education in his kindergarten (child garden) idea—simple growth, development, expression. He demonstrated that education should be *expression,* not *impression,* and his thought has been amplified until it has revolutionized the whole educational world. Instead of teaching a child twenty-six abstract characters he taught it to observe objects, and when it desired to express the observation it was taught the combination of characters necessary, without special reference to the characters. After using them to express many observations, they became familiar without any special effort on the part of the child. All is observation and interest from the start.

In Felix Adler's model school in New York and in many schools in New England this principle has been applied with wonderful effectiveness. Through systems of manual training it is constantly being worked out, giving the youth the opportunity to discover his natural

bent and to know how he most naturally expresses himself, and he naturally develops along that line, so that when he has been in school for a term of years he will not have simply a mass of abstract ideas, but will know by practice their application. Someone has said that "One can't be sure of knowledge until it is applied or imparted." How much better prepared he will then be to select a line of work which will express his nature, and make him serviceable not only to himself but to all society. The teacher will not then be entering mechanics, the farmer will not try to be a politician, the horseman will not attempt to become an accountant. In other words, we have learned that we "Cannot gather figs from thistles," nor "Make a silk purse from a sow's ear," and we understand that remark of Hubbard's in a late number of *The Philistine,* "The Kindergarten is the greatest scheme ever devised for the education of parents."

You can all see at a glance that this preliminary preparation is just as important to the teacher in a profession as the student. Teachers would then be selected because of qualifications, rather than because they could be hired cheaply, or dared not go into the world to build up a practice for themselves. Many can teach who cannot practice, many can practice but cannot teach. Why then do we not follow our natural bent, why do not colleges follow out the idea of expression, and select teachers because of fitness? Principally because, owing to the law of competition, the schools can afford to hire only a few high-priced men, and this is due to the fact that they are organized principally for profit, incidentally for education, and must be made to pay. This leads to the usual method of having a nucleus of competent men, with subordinate positions filled by incompetents, men who can be hired cheaply. It leads to hustling for students and getting in those who will never be able to express through this profession. It leads to careless preliminary examinations, or none at all. It leads to keeping young men at it, and finally graduating those who are unfit for the profession, instead of trying to help them to find their place, for no college can afford to get the reputation for plucking many. It leads to extending the years of the college course, and getting more work and money from students, thus putting a hardship upon the man who has the ability to do the work in less time.

In other words, while our lower forms of education are on an

ethical basis, our colleges, as a rule, are on a commercial plane. Why is it so? Because we who have money enough to afford our children a higher education desire to give them a special privilege, special opportunity, which are not accessible to the masses, thereby placing them in the better (?) classes where "they won't have to work so hard." Do you think this is not true? Did you ever stop to analyze the motive of higher education? If this is not true perhaps you will tell me why we have not voted to establish public colleges, supported by public tax, where all would be privileged to have higher education.

These remarks indicate what I consider the remedy for the evils which were under discussion a year ago, or rather, since higher education was established, and always will be until we have public colleges. No! until we have national or international public colleges. Then and then only will the commercial competitive element be done away with, and we will have only competition for efficiency. Not all men in college faculties will then be equal, but each will be the best procurable for the place. There will be no pressing in of students who are not naturally so inclined. The preliminary examination will be especially intended to determine adaptability and proficiency. A mistake in choice of profession (which would not be so likely to occur) would be readily corrected if money considerations were cut off. The college years would be extended only for those who needed it, for instead of having a three or four years' course, it would be a prescribed curriculum of study and the candidate would graduate when he completed the course to the satisfaction of teachers, who would be interested only in the welfare of the student and community. We all know that one man can do a piece of manual labor in less time than another, and it is just as true of intellectual tasks. Why then should all be compelled to put in an equal number of years? The proposition seems absurd, viewed in this light. The adoption of this idea will, I hope, be the means of regulating graduation or promotion throughout our whole educational system.

I have been somewhat critical of our dental colleges, but I have not pointed out one defect which the members of the various faculties do not recognize and deplore. My object is not to protest against the present institution, but by pointing out its defects, and giving remedies for same, to promulgate a philosophy of justice and equality of opportunity.

But I would not pass without paying a deserved compliment to dental college education. Despite the criticisms made, which apply to all college education, it would be unjust not to mention the fact that with the exception of one profession (that of the nurse) they are all hopelessly deficient in expression, compared with dentistry. Not one of the others devotes one-tenth the time to expression which the dental colleges do. Their faculties have done wonderful work in this line and deserve unlimited praise for it, and we are proud to be members of a profession which has taken such advanced ground in educational matters. It seems as if other professions would have to come to this idea very soon and put it into practice.

The criticisms of this paper are not directed against the present institution, except as it illustrates the defects of the present system, because it is recognized that under it these deficiencies are inevitable. They are intended especially to arouse an interest sufficient to investigate and recognize the awful defects of our competitive system, which makes not only these things necessary, but a thousand others which are still more terrible, and the feeling is that the members of the dental profession, so advanced in educational matters, should be foremost in trying to remedy the system.

If you want to know the fallacies, nay, the crimes, of the system, read "The Parable of the Water Tank" in Bellamy's "Equality." If you want to know the remedy read Tolstoi's "What is to be Done," of which Jane Addams in a recent address said that to her "there were two classes of people, those who had read it and those who had not."

But someone says "Let well enough alone," or "you are trying to introduce the millennium through your imagination." To the first we would reply, "Let well enough alone" is the motto of the sluggard, the one without imagination. He is the conservative (because he conserves wealth—usually for himself), who, sitting by his fire, with his door shut, cannot imagine but that all the world is warm, and if he has had a good meal cannot conceive of anyone else being hungry. He lacks imagination. To the other we would reply, we are perfectly willing to have the millennium come if that means justice, or equal opportunities for all. We admit this is an ideal, but the ideals of to-day are the realities of to-morrow. When Besant wrote in his "All Sorts and Conditions of Men" of "The Palace of Delight" it was imagination, but the result is a reality to the people of Lon-

don's East End. When Jules Verne wrote of his Nautilus with its incandescent lights it was a dream, but now is realized.

When Froebel promulgated his idea that education should be *expression* not *impression* it was a theory, which we are realizing upon. So imagination has always led the way; it is the torchlight to human progress, and when those who have looked beyond the confines of their own selfishness see and tell of visions, of peoples living together in love and justice, we are conscious of potentialities —a mere spark of imagination, which fanned to a conflagration would light all humanity and by its ever-widening circles move the races onward and upward, toward the Great Consciousness.

Discussion. *Dr. Edmund Noyes,* Chicago: The expression of ideals and the statement of philosophical principles are always useful, but the value of ideals is in proportion to the closeness of their relation to present conditions, and if I were to criticize this paper I should say that the road between the two is not made clear enough. The essayist suggested the desirability of taking higher education away from the independent institutions and having it provided for by the state. As a matter of fact, almost every one of the older states provides for professional education in the state university. Some of the dental schools connected with universities have such strong support as to raise them somewhat above the independent colleges, but others must take care of themselves, regardless of affiliation. Some go even further. For instance, the state of Minnesota prescribes that the dental department of the state university shall be absolutely self-supporting, and it further rules that all the matriculants must be high school graduates, which, of course, drives many students away. That is not very satisfactory state support. We must be a little patient with the private institutions, as they are raising their standard each year and are striving after better things. The essayist pleaded for an elastic curriculum that would allow students to advance according to their ability. We all know that some acquire knowledge faster than others, but the necessary limitations and economics of teaching require that the whole student body shall be carried over the same subjects together, and it is not possible for the boys to string along one at a time and receive proper attention. It is a seeming injustice for bright students to be held back by slow ones, but it is not real, as there is no limit to the training and education that a quick, bright student may acquire if he has the inclination. The amount of

anatomy, chemistry and other studies required to pass the examinations is certainly not all that a man could use in practice, so the bright students could well go beyond the curriculum.

Dr. G. V. Black, Chicago: Here in our society we learn the sentiment of the membership, but we must not forget that the majority of the men in the state do not belong, and that among the non-members are many good men. Now the state board of dental examiners and the colleges deal with the whole body of the profession and not simply with the society members, and it happens very often that students come to us well recommended by prominent men in the state, and they take the rejection of those students as a personal affront, even though they realize in sending them up that they are not eligible. In fact, I have known dentists to resort to fraudulent practices in order to get their pupils admitted. The schools dare not advance more rapidly than the profession want them to, but the men conducting schools will be glad to raise the standard as rapidly as the profession will support them. The rivalry among schools for students does no harm if conducted properly, and that is not what tends to lower the standard. Dr. Noyes is right about the curriculum, and there are many students who do two or three times as much work as is required of them. These are the men who are heard of afterwards.

Dr. G. D. Sitherwood, Bloomington: What percentage of young men entering dental colleges to-day have had preliminary work in a dental office, and what percentage enter and are graduated without any conception of the old scheme of preceptors?

Dr. Black: I cannot answer definitely, but a large proportion of students nowadays have had no office experience. However, a number come to us from the office, and all generally come through the advice of some dentist.

Dr. Noyes: I believe most students come to the schools without office experience, and the teachers prefer them to those who have had it. I also believe that those students who are not compelled to earn money between sessions are apt to spend a considerable portion of the time with some practitioner. I have long been convinced that the proper time for a pupilage is just after graduation. If the graduate would go into the office of a good man for a while he would pick up just what he needs, and he could not do this without the college training.

Dr. B. J. Cigrand, Chicago: The essayist stated that there was a good deal of fighting among the members of the faculties of the various dental colleges, but this does not apply to the three schools of Chicago, for they are on the most friendly terms. When the time comes that the Illinois State Dental Society directs and guides the dental colleges of the state we will all rejoice. All would be glad to see an executive board elected by this Society or any other legally organized body to pass on the qualifications of dental matriculants. If the members of this Society would go through the dental colleges of Chicago they would admit that conditions are not so bad as stated.

PRESENT STATUS OF DENTISTRY IN THE PHILIPPINE ISLANDS.

BY LOUIS OTTOFY, D.D.S., MANILA, P. I. READ BEFORE THE ILLINOIS STATE DENTAL SOCIETY, AT SPRINGFIELD, MAY 13-15, 1902.

It is with pleasure that I send you something for this meeting from these distant possessions of the United States, both in the interests of my many friends in the Society, and also for the reason that much inquiry is made regarding the practice of dentistry here, which can be more thoroughly answered in a communication of this kind than by a number of individual replies.

Dental Legislation.—The law now in force is very meager, and even its few primitive requirements are not attempted to be enforced. A native without a diploma would be subjected to an examination, but no natives are presenting themselves for that purpose. A foreigner or American, if he could show a diploma from some fair dental or medical institution, or a certificate of registration from some licensing body, would simply have his name, age, date of diploma, etc., entered and then be ready to enter practice. Recently an act has been drawn, approved at a meeting called by the Board of Health, to which all practicing dentists in Manila were invited, and finally approved by the particular member of the commission to whom bills of this nature are referred, and it is now ready for passage. It will possibly have become a law ere this is printed. This measure is modeled after the laws in force in most of the states. Its principal provisions are: Board of Examiners, consisting of three who must be graduates, to meet twice a year or oftener; diploma essential to

admit to examination, both being required before admission to practice; provision for temporary license, fees about the same as in most of the states; frauds, as the falsification of diploma, unauthorized assumption of titles, practice without compliance with the provisions of the law, punishable by fine or imprisonment, or both.

Dental Education.—Until the advent of the Americans in the archipelago but little attention was paid to dental education. A partial course, consisting principally of instruction in extracting, was maintained until the Spanish-American war broke out, on behalf of the College of San José, which is the medical and pharmaceutical department of the University of Santo Tomás. In December, 1900, the Manila Dental College was established, and a proposition is now pending to merge this into the University of Santo Tomás, thus adding a dental department to the almost complete curriculum of that University. There is a large field for the practice of dentistry among the natives. In fact, it is a field which has barely been touched, and one which can be made profitable to the native practitioner only.

Dental Literature.—In this department of dental science nothing whatever has been done by the Filipinos. With the development of the dental educational system it will become practically necessary to create a demand for the native practitioner. At the present time, excepting the best class of natives, no information whatever exists among the masses regarding the importance of the teeth. When the College approaches such a state of perfection that it is ready to send its students among the people, I hope that the latter will have been awakened to a sufficient extent to appreciate the worth of this entirely new (so far as they are concerned) profession. My proposition is, to rouse an interest by means of small booklets relating to dental hygiene, such as are current in the United States, and by disseminating information through brief pamphlets and leaflets, or possibly by introducing the subject into the curriculum of the public schools. Of course, such information will have to be imparted in the various dialects of the natives for some years, later on to be supplanted by the English language. Eventually, when a sufficient number of natives are in practice, there may be room for a dental journal.

Dental Societies.—No associated effort was made among the natives until the advent of the Americans. Early in 1900 the Manila Dental Society was organized. Since then, with a few exceptions, the members of the profession have been more or less migratory.

Dentists have come and gone, and very little has been done, but recently the influx of Americans has been greater than ever, and when the number resident and permanent is sufficient to make it possible to have live meetings I am of the opinion that some good will result. I have had in view the establishment of an Insular Dental Association, but the time is not yet ripe for that, as the dental practitioners are practically confined to the few centers of population, but especially to Manila. In connection with the matter just referred to, I sent out some time ago to the various provinces for information regarding the number of practitioners, and it may be stated on general principles that the provinces are practically devoid of dentists. I have made the following estimate of the number of practitioners in the islands, exclusive of those in the service of the United States Army, and I believe that the figures are very nearly correct:

Manila:		
Americans (graduates)	4	
Americans (not graduates, but licensed to practice in some state of the Union)	2	
Americans (graduates about to locate, March 15, 1902)	2	
English (not graduates, but registered in England, 1878)	1	
Spanish (not graduates, one registered, one not registered in the Philippine Islands)	2	
Filipinos (registered in the Philippine Islands)	7	
Total in Manila		18
Provinces:		
Americans (graduates, said to be permanently located)	2	
Americans (itinerant and members of the Hospital Corps, U. S. A., but not members of the dental corps)	6	
Natives (not graduates, estimated)	10	
Total in Provinces		18
Total in the Philippine Islands		36

It should be stated that there are in addition several American and Filipino dentists, some graduates, others not, who find it more profitable to be engaged in commercial business, or as clerks, etc. Furthermore, that nearly all those mentioned as regularly in practice employ one or more native or foreign assistants, the aggregate number of

which, so far as known to me, is about fifteen. Taking all the figures, in connection with the members of the dental corps of the U. S. Army and their assistants, it is safe to assert that at the present time about ninety persons are practicing dentistry, some legally, others illegally.

Dentists in the Army Service.—The dental service in the United States Army, provided for under the Army Reorganization Act of February 2, 1901, was inaugurated in these islands with the arrival of some of the appointees on June 28, 1901. The dental corps is under the charge of Dr. Robert T. Oliver, Examining and Supervising Dental Surgeon, with headquarters at the Chief Surgeon's office in Manila. At the present time the number of troops in the islands is about 41,000, and the number of operating dental surgeons is fifteen. Each one of these is provided with a member of the Hospital Corps, who acts in the capacity of an assistant, and with a first-class, complete operating outfit for all usual operations, except prosthetic work. In two instances, however, prosthetic laboratories have also been established. The splendidly equipped hospitals of Manila furnish all the necessary facilities for oral surgery. The dental surgeons are stationed at various convenient points throughout the islands, from which they make trips to neighboring posts.

Since the arrival of the corps one death has taken place. When this vacancy is filled there will be sixteen operators. The corps, while efficient, is wholly inadequate for the large number of troops, hence the immense amount of work they do is necessarily confined to emergency and other urgent cases. On an average each man performs about 250 dental operations, that is, filling, extracting, treatment, etc., per month, making a total of about 3,750 operations per month for the entire force now on duty in the Philippines.

In General.—Almost every mail brings inquiries from dentists in the states who would like to locate in the islands. It is a difficult matter to give suitable advice in these cases. In a general way it may be stated that the amount of business done by dentists has been greatly exaggerated. Some thirty years ago Dr. Stout of Chicago, and subsequently other American dentists from China ports, the West Indies, India and other neighboring countries, made visits to Manila, and sometimes to the second largest city of the islands, namely, Iloilo, and were paid what to-day would seem fabulous fees. Until 1895 or 1896 no American dentist was permanently located

here. Even shortly after the American occupation, for probably one year the fees were exceptionally good; these times are in common parlance referred to as the "volunteer days," that is, when the volunteers were coming and going. Since that time the fees have assumed moderate proportions. In fact, they are no higher than the fees in good offices in the United States, and proportionately much lower than other commodities command in Manila.

There are several dentists located here who are making and saving money, and, on the other hand, there have been a number who were unable to succeed. With the increase in Americans who are locating here in various lines of business there will be room for more dentists. The population of the islands is roughly estimated at 8,000,000; the bulk of these people will never be remunerative patrons of Americans, and Americans should not be misled by stories of fabulous wealth on part of the natives. There are some rich natives and mestizzos, very few Spaniards, but none of these are educated to the American standard, hence the practice of Americans is practically limited to the foreign population. There is no city in the islands outside of Manila which, in my judgment, would enable an American dentist to make money, when it is borne in mind that the army is in some measure provided for; so the only place to locate is in Manila. The population of Manila is largely native and Chinese, Americans and foreigners (whites). Combined number at a recent census, 14,-314; adding to this the better class of natives, Chinese and mixed races, there is probably a clientele of less than 20,000. Considering these figures, anyone contemplating to locate in Manila may estimate his chances.

Any who desire to come will find on my part and on part of the majority welcome into our ranks, provided they contemplate ethical practice. A complete outfit should be brought. We have no gas, and use the various kinds of gasoline apparatus for soldering. All electrical appliances should be wound for 100 volts, 16,000 alternations. Though I find that I am able to use the electric mouth-lamp, cataphoric apparatus, furnace, etc., not wound for this current quite satisfactorily, but I know of dentists who have brought appliances which they could not use with this current. Material should be brought in quantity, especially teeth, solder, gold, amalgam, etc. While these things can now be purchased in small quantities, the prices for them are double and treble. Rents are somewhat high, and so is living,

but not out of proportion for the comforts derived. Bring no clothing except for the voyage; no furniture; books and pictures and all things that elevate, yes. Enough money to get home with in case the climate does not agree. In my case, and in that of several others, with proper care, health has been better than ever before. The climate here is simply admirable. We have all comforts, electric light, fans, ice, etc.

GONE WITH A HANDSOMER DENTIST.

(With Apologies to Will Carlton.)

BY GEORGE F. WOODBURY, D.D.S., CLEVELAND. READ BEFORE THE NORTHERN OHIO DENTAL SOCIETY, JUNE, 1902.

John.
I've worked all day in the office, tending a nervous freak;
I've scolded my office boy till I'm hoarse; I've stood still my legs are weak;
I've choked a dozen swears (so's not to tell Jane fibs),
When the instrument struck a nerve and the patient punched my ribs.

My instruments are all put away; I've hung up my office coat;
I've kept my assistant's salary to pay for the things he broke.
I'm cross, and tired, and hungry, things don't seem very real,
But Jane won't say to-night that I don't make out a meal.

Well said! the door is locked, but then I have a key,
Attached to a chain for safety, one of her presents to me.
I wonder who's having a party, that she's hustled off pell-mell,
But here on the table's a note, and probably this will tell.

Good God! my wife has gone! my wife has gone astray!
The letter it says, "Good by, for I'm going away;
I've lived with you six months, John, and so far I've been true;
But now I'm going away with a handsomer dentist than you."

A handsomer dentist than me! why, that ain't much to say;
There's handsomer dentists than me go past here every day.
There's handsomer dentists than me—I ain't of the handsome kind;
But a better providing dentist than me I guess she'll never find.

I've always provided the things she wanted, and bought her a ping-pong set;
What more can she want, I wonder? Is there anything else to get?
She had dresses and hats galore, and all the new-fangled ties;
She had everything for her comfort, yes, everything under the skies.

Oh, woman! thou art fickle, unjust, cold-hearted, cruel, unwise.
You tried your best to deceive me, but your love was only lies.
It has made me hate, yes, despise, you and all your cruel kind;
I'll never think of you again, I've blotted you out of my mind.

As sure as the Auto kills and maims, there'll come a time when she
Will hate that "cheap John" dentist, and wish she had stayed with me.
And when her teeth decay, and an abscess grows apace,
And when he tries to fill them, and treat her swollen face—

She'll kick, and cry, and scream and make an awful fuss;
And he'll to a back room go and rave, and stamp and cuss.
And maybe then she'll cry for me—for me—but no!
I've extracted her out of my heart, and I'll not have it so.

And when he puts on her left sup'r central a beautiful gold crown,
I wonder if she'll think him a professional man, or only a funny clown?
I hope she'll have to wear it until she breathes her last,
It will be a sorry reminder of what she did in the past.

But no, I cannot be so cruel—I'll not wish her that awful fate;
I'll take my harsh words back before it's forever too late.
She's too fine a woman, with her beautiful chiseled face,
To have it disfigured forever and live in eternal disgrace.

My hard old heart grows softer, my anger has flitted away.
Yes, I really think I love her, and could welcome her back to-day.
And if I thought I could sincerely offer a silent prayer,
And if I thought I had some little influence there—

I would pray for her safe return. Oh, if it could be so!
And I'd be as contented as I was half an hour ago.
"O God! if you want a man to sense the pains of hell,
Before you pitch him in just keep him in heaven a spell."

(Enters Jane.)
Why, John, what a commotion here, you've thrown things everywhere;
You have smashed my ping-pong table, and broken a rocking chair.
And now my father's here, waiting for luncheon, too;
I've been awheeling with him—he's that handsomer dentist than you.

You men go out on the porch, while I put the kettle on,
And get things ready for tea. Why, what's the matter, John,
You look so strange, so very queer! Come, what's crossed your track,
Didn't you know I was only joking? I'm willing to take it back.

John.
Well, now, wouldn't that jar you; she thought I'd understand,
But I'll never find fault again, till I know where I'm going to land.
But one thing's settled with me—to appreciate heaven well,
'Tis good for a man to have some fifteen minutes of hell.

REMARKS ON INFANTILE SCURVY.—J. McCaw (*Brit. Med. Jour.*) says that in most of these cases the diagnosis is not hard to make, but where the classical symptoms are wanting or only one is present it may be safe to give some definite answer if asked for a diagnosis, and refers to a case which was brought to him; the child had been fed upon condensed milk and patent cereals for ten months. The baby had vomited blood, and there was a slight diarrhea in which there was altered blood. There was complete absence of other symptoms. Orange juice, 1 dram every two hours; small quantities of whey and cream at varying intervals, with a teaspoonful of beef-juice every four hours, comprised the treatment. At the end of one week the whole condition was changed and the child soon recovered completely. Fowler's solution was given during the rest of the treatment.—*Medical News.* [The classical symptoms of infantile scurvy are: Anemia, tenderness of the lower extremities, subperiosteal hemorrhage, the presence of colored spots resembling bruises about the limbs and chest, swelling and sponginess of the gums, and a tendency to hemorrhage. The use of orange juice is especially indicated in the cases like the one above described, as lemon juice is likely to increase the gastric irritability.—ED. *Cosmos.*]

Digests.

RESTORATION OF THE INCISIVE EDGES OF THE ANTERIOR TEETH WITH PORCELAIN. By L. E. Custer, D.D.S., Dayton, O. This operation is not new; however, the details as herewith presented may possess some merit. Cases of fracture and defective development of the enamel of the incisive edges of these teeth generally call for restoration without the removal of the whole crown of the tooth. Conditions indicating a porcelain tip are those happily medium between a small gold operation and a full porcelain crown. This operation is not advised where but a mere film of porcelain would restore the contour, for a gold and platinum filling would

FIG. 2.

FIG. 1.

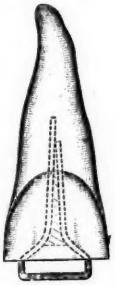


FIG. 3.

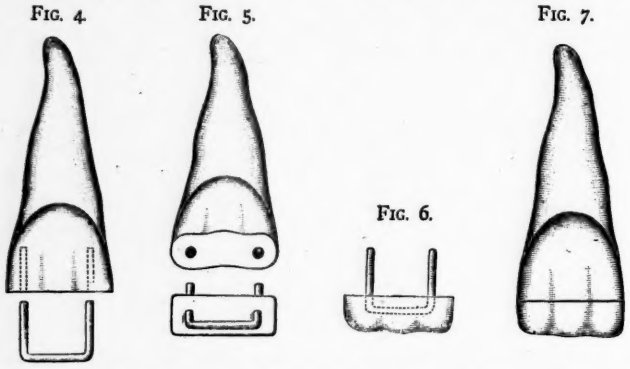
there be better. *Porcelain to have strength must have bulk.* Veneers, thin pieces and edges in exposed positions are the ruination of porcelain work. The indications for the practicability of a porcelain tip are where from one-fourth to one-half of the crown is missing.

The first step is the dressing of the edge of tooth with a stone to a symmetrical outline. A straight line across the labial surface is better than a curved one in this work. The second step is for the anchorage of a single pin if the tooth is pulpless, or a U-shaped staple if the pulp is alive. Where the pulp is absent the pin should be shaped as shown in Fig. 1. This is easily effected by bending a piece of 20-gauge platino-iridium wire upon itself and filling the point with solder, gold eighty parts, platinum twenty parts. The enlarged end should be almost as wide as the dentin at the edge, and the solder should not entirely fill the loop, for reasons that will appear. The pulp-canal should be enlarged laterally to receive the large

end of the pin up to an imaginary point where the horizontal wire will come about the middle of the completed tip, as shown in Fig. 2.

A piece of platinum foil, a little larger than the end of the tooth, is slit in the middle to receive the pin. This is placed on the end of the tooth and the pin pushed through to its seat. The two are then united with the smallest bit of pure gold that can be handled. (Fig. 3.) Only one wire need be soldered in this manner. The piece is then returned to the tooth and the platinum carefully adapted to the end. If platinum about twice the thickness of that used for inlay work be used it will be found easier to manage, and the extra thickness will not materially affect the final fit in this operation.

In those cases which present with a live pulp the following course



is to be followed: Two holes are drilled with a No. 2 bur in a parallel direction between the pulp and the enamel to about the depth indicated in Fig. 4. These holes should both be drilled at the same time by making purchase with the fingers on the neighboring teeth and lifting the bur from hole to hole, alternately drilling a little in each. In so doing the holes will be parallel and of the same depth, and there will be but little pain.

A U-shaped staple, of 20-gauge platino-iridium wire, is bent as shown in Fig. 4. This is fitted into the holes and the ends are cut off to such a length as to bring the horizontal part to about the middle of the completed tip. A piece of platinum, as before described, is placed over the end of the tooth and punctured over the holes in the dentin. The staple is then forced to its seat and the whole removed, and soldered at one end with a small particle of pure gold.

(Fig. 5.) It is then returned to the tooth and the foil adapted to the incisive edge.

We now have what may be called the matrix for the porcelain tip for either a pulpless or a live tooth. Porcelain of a dark yellow color, "Close," fine ground, or "Brewster" body No. 13, is now packed about the loop so as to represent the dentin of the tooth in color and contour. This is baked, the piece fitted to the tooth, and the edges of the platinum again adapted to the enamel. It is then removed and porcelain to match the neighboring teeth is added, to the extent of over-contouring. It is then fused. If the over-contouring of this layer has been sufficient, the shrinkage will have reduced it to about the proper proportions. (Fig. 6.) The platinum is then carefully stripped from the porcelain, and after dressing a trifle from the ends of the pins to compensate for the thickness of the platinum matrix, the piece is set with cement in the usual manner and dressed. (Fig. 7.)

Such an operation, if the porcelain be not too thin, will not only present a good appearance, but will be quite as serviceable as any other method of restoration. It is much easier performed than the average porcelain inlay and the discouraging shadow problem is not present to any extent.—*Cosmos, October, 1902.*

ETIOLOGY OF ALVEOLAR SUPPURATIONS. By Dr. W. H. Birchmore, Brooklyn. Suppuration anywhere is sufficiently annoying, but when it seats itself at the root of a tooth, it is, judging by a personal experience, simply—let us say that it is very interesting. Not only is the congeries of symptoms interesting by reason of the pain and nervous disturbance, so utterly out of all proportion to the pathological importance of such a lesion, considered from the surgeon's standpoint, but the symptom picture finds an added interest in the views which find expression in professional writings. Formal treatises on pathology and casual contributions to the journals alike give evidence that either the lesion has not been studied scientifically, or that the men who write having, it is presumed, studied it properly, refrain from drawing the conclusion, logically obviously necessary from the premises which they so fully discuss and so accurately state.

Etiology of Alveolar Abscess.—The views held by the various writers may be classified, judging by their printed words alone,

much as follows: (*a*) It is a disease of nutrition. This view regards the fact of suppuration as the chief symptom, and considers it of value as an evidence that the general health of the patient is in a bad way and thus only. (*b*) It is a local manifestation of a widespread disorder of the blood. First, the influence of the suppuration bacilli is acknowledged, but it is held to be secondary; the condition of the blood is given first place. The contention is made that if the blood were in proper condition, phagocytosis would relieve the focus and all would be well. Secondly, this view also recognizes the influence of the suppuration bacilli, or rather perhaps cocci, but at the same time holds the blood to be the true locus of the disorder. It contents itself with saying that "in this condition of the blood any trifling injury becomes a focus of suppuration." There again the blood is called into the discussion of causes, and it is held "that the condition of the blood is the first cause of disease." Third, this view implies that the suppuration cocci are at all times present in the blood, that the phagocytes are always engaged in destroying them, but in this case in some way the villains always escape the policemen. (*c*) In this version, seldom held and still more seldom voiced, someone dares to say that the cocci are intruders from outside, and the suppuration is the body's battle to expel the invader.

In nearly every paper which I have read, and in nearly every book which I have seen which had any pretense of value at all, I have found the same state of things. Either an implication that the invasion of the cocci was from the side of the blood circulation, or a complete negation of the causative relation of the cocci. In every case but one the final fault stands charged against the blood as a sin of omission or commission. Against this view are many and weighty objections, which seem to me to amount to a demonstration that the conclusion logically necessary from the facts of the case now in the hands of the profession should be without hesitation drawn, and should be promulgated without regard to the reputations of those who think unreason. We find on every side the hypothesis that the diseased action finds origin in a condition existent on what may be called the blood or the circulation side of the tissues, treated as an axiom. The utmost claim which can be granted is that it is a mistaken postulate.

Causes of Suppuration.—Again and again the surgical profession at large has insisted that there are many forms, causes and occasions

of suppuration, but one by one these have been eliminated until it is now possible to say positively that no form of suppurative disease exists in which the immediate cause and agent is anything else than one or the other of certain figured elements, probably all of them vegetal in origin and nature, only one now remaining in doubt, that of the suppurating disease called smallpox. Furthermore, the pathologists have carried their studies to the point where, given the suppurative disease, they can tell almost at sight its cause, and they have experimented with these causes until they can tell just what form of suppuration will follow if a given species of microphyte is inoculated upon an animal body, be it in a condition of health or in a condition of reduced vitality. So far have these studies gone that we can say beyond a doubt or question, "without these foreign figured elements, these vegetal intruders, if you will so regard them, there is no suppuration, there is no pus." It may be possible to say even more and yet keep within the bounds of most rigid scientific truth; to say, "Not only does suppuration never occur without these figured elements, but no definable form of suppuration ever occurs without its definite figured element." No pathologist skilled in modern culture will for an instant dispute this statement, and those who do are led to do so by ignorance.

Among the forms of suppuration caused by known and named figured elements is the very disease in question, for which the most apt word "cementitis" or "pericementitis" has been coined.

Had I no further object in view than to simply state the case, my purpose would be subserved by saying, "while clinically I know next to nothing about the separation of these three forms of disease, and my knowledge in this clinical bearing is wholly at second hand, for I am no clinician, that which I do know as a pathologist from the study of specimens sent to me for examination, accompanied with memoranda of clinical details for my further enlightenment, enables me to say most positively that the three congeries of symptoms, which I have referred to, do actually exist well and sharply defined, and also a fourth one, but this is less clearly marked. As to the clinical distinction answering to the pathological one, there is not the smallest doubt whatever." Logically, there should be two other forms in addition to these three, as will appear later, and undoubtedly they exist; but it may be that by reason of their extreme infrequency, or because the study made is insufficient, they remain in the

undefined haze which surrounds the whole question clinically, as yet but indistinctly seen.

It is utterly useless to discuss the question, "Is suppuration in general caused by the figured elements known as the suppuration schistocytes?" because those who decline to believe it are only those who are wilfully ignorant. The present question, the question seeking elucidation to-day, is this: "From which side of the plane of disease, speaking pathologically, does the diseased action come?" Many writers and teachers seem to think "from the circulation side." Let us examine the reasons for accepting or rejecting this hypothesis.

Relation of the Blood to Suppuration.—If it be true, it requires that the suppuration's cocci be circulated in the blood before the manifestation of the diseased action, and that the provision existing for the capture and destruction of such intruders in this case should be either non-existent or a failure. The objections to this theory are insurmountable. In the first place, we know what the congeries of symptoms are when the suppuration's cocci make their way and growth in the blood against the efforts of the phagocytes, the body's standing army always on the alert against invaders. Such congeries of symptoms are those which we call pyemia, suppurative disease of the liver, which is always accompanied by other and corresponding lesions in other parts of the body, diffuse tuberculosis, the dreaded variola and the like. Even the disease which we have now learned to call "furunculosis," and which sometimes so curiously mimics smallpox both in symptoms and results that men have mistaken the diagnosis, is not a blood disease with a local expression, but an invasion from outside; and although it is sometimes followed by terrible secondary consequences, these are distinctly septic, distinctly the results of chemical poisons elaborated on the surface of the body and there absorbed. No argument is needed to show the difference between these diseases, between pyemia and the disorder under discussion, either as to their anatomical seriousness and the influence which they exert, by the permanent lesions left behind after convalescence, on the afterlife of the unfortunate victim.

It will be urged that certain men are teaching that various cocci and bacilli can at any time be found in the blood by cultivation experiments, and also all that is needful to establish a "focus" is a "weak spot," a "something in which these figured elements may have found a nidus for the reproduction of their kind;" given this nidus,

say these teachers, and the deed is done, suppuration begins at once. This teaching was the current orthodox belief fifteen or twenty years ago, and some men may still believe it, but for the student fraction this theory has been dead and buried for years; indeed, it was refuted almost before it got outside the laboratory in which it was formulated; it proved too much; it was utterly untenable; it was logically impossible. In almost any specimen of blood obtained by pricking the skin phagocytes can be found with cocci and bacilli within them, but the cocci are not ruffians at large; they are but arrested peace disturbers in the police band wagon, to be unceremoniously dumped out on the surface of the intestinal tract if they live long enough, to be thrown on the body's dust heap if they die.

Abscesses on Living Teeth.—I have before me a monograph by one of Zeigler's pupils, in which this very form of suppuration, that at the base of a tooth apparently sound, is used as an illustration, and in a way as an argument to show that the cocci of suppuration must come from the circulation's side. But his argument fails, being based on fallacy. In effect he says: 'Since we cannot show that these bacilli come from the ectoderm, and they certainly came not from the endoderm, we must admit that they came from the mesoderm, that is, from the blood vessels." This is wrong in logic to begin with. It is based on an assumed ultimate knowledge, one might almost say that he predicated it, which knowledge as a matter of course he did not and could not have; and its assumption that the structures surrounding such a tooth are really sound, that they are really existing in ideally perfect conditions because he cannot prove the opposite, is absurd.

Many men who write are altogether too prone to use the word "physiological," especially when coupled with the word "condition," as thought it were an expression of an actual instead of an ideal state. Were conditions ideal, disease would long ago have been a tradition simply. In fact, physiological means only that the conditions are not incompatible with usefulness. Granted that the tooth does seem perfectly normal, who is there who shall change the words "does seem" to "is;" who can know enough of any tooth to say "it is perfectly normal?" Or while, as now, the word "normal" means only agreeing with the usual appearances and observations, to change this word to "ideal," or to use this word "normal" as equivalent

therefor? A tooth which in every way agrees perfectly with the usual appearances, and has even been asserted to be perfectly normal, has once and again deceived the most skilled specialists as to its real condition, both as to the matter and the manner of disease, as all men know too well. I think that we may safely use greater modesty of diction, as well as greater accuracy in our choice of words, both in the thought and its statement in discussing both physiological and pathological processes.

To bring the matter to its final expression, it is my contention that not one little sparklet of scientific evidence, evidence so guarded against error that it cannot be gainsaid, has ever been brought forward to show that abscesses in the neighborhood of the teeth are caused by suppuration-schistophytes circulating in the blood, and that all analogy and experience are both alike against it. If men, so many men, have died and worms have eaten them, but not for love, just how many teeth have died and their entire axial structures been softened and destroyed, and even had amorphous centers built up by repair processes without one suggestion of suppuration, although in some few cases evidences of inflammatory disease have been found on examination post-mortem? The clinician with his experience may say "not any," but the pathologist with his specimens will say "legions."

Were the suppuration cocci roaming the blood in search of places in which to fix their homes, this could not be, or our bodies would be simply bodies of corruption. But as I have said, they are not so roaming; the very few which escape the policemen on guard are caught immediately by the huge multitude of the phagocytic cells and never get a chance to reach a place in which they might make trouble. Entering the body by way of the skin, lungs, intestines by myriads every day, how many are there living long enough to carry out their evil will? Yet far too often for our comfort trouble comes; if not by way of the blood, then some other way, but how? Is the explanation not in order? Most certainly it is. The pathology of the suppuration process in relation to the teeth, for such in fact is the question really demanding attention, is one so beclouded that it is difficult to begin in just the right place, but the first thing to be remembered is that teeth are in fact dermal appendages paralogous of the nails and hair, and in seeking for the pathological analogies we must look to the nails and hair rather than to other structures, and

in the inflammatory disorders of the hair follicles we really find the nearest analogies to the peridental suppuration.

It is useless to discuss the cause of suppuration. Every one now knows what it is, but it may be worth while to mention that in the life history of every coccus form there are many periods, during two of which it is distinctly motile. One when previous to encystment the cell contents are making a journey as an ameba, the other when, freed from the enclosing cyst, the young plants are free swimming "spore-like bodies." The life history of these microphytes is not nearly so well known as it should be by all who have to deal in thought or act with them and their results in daily life. With this as the reason for so doing, let me go over the life history and life work of these organisms.

Life History of Microorganisms.—Most men who see these bacilli do so in strained specimens mounted in balsam, as it were a part of a cabinet of curios, and it would seem from pictures and written descriptions that even those who professionally claim an intimate acquaintance really know them only in one stage of their life history as exhibited in one culture medium and one only. The examination of these beautiful slides with an oil immersion is a very pleasant way to pass an idle hour, but as an attempt at serious study it is much belated. If the balsam mount is carefully stained by Gram's method, and most probably it is, all that the eye can detect even with the best objectives will be something less of depth of color in one coccus than in another, but if the staining is not too deep and is otherwise unusually successful, it will be seen that the cocci are not all alike and that some have no cell contents. If, however, the cocci are grown on the cover glass in gelatin faintly tinted with "life blue," we see that the cells which were found empty in the balsam-mounted slide were the empty membranes of cells which had been evacuated, and it is quite likely that even while we are looking at and examining the slide, another one will break and with some speed evacuate its cell contents, and if the magnification is sufficient and the lenses equal to the best, it will be seen that the cell contents thus evacuated are an ameba containing granules, and these granules stain bright blue. [This word ameba is used to express a body form, not any definite animal. The use implying a generic or specific meaning, however permissible a century since, is not so now.]

This culture has been made in artificial saliva, as well as in other

culture fluids, and here also this process of the evacuation of the cell contents and its independent ameboid life are well seen, and it will be noted that the activity of the ameba is relatively great, and at length one comes to understand that so small and so active beings must be able to reach to many unexpected places, and to some which would hardly be thought of as accessible to them. After a greater or less period of ameboid existence the ameba is encysted, obtains a shell more or less protective, and after a time discharges a number, at least more than twenty-five, and it may be more than one hundred granules, which at first are also motile. These in their turn develop into spheroidal cocci, grow into chains and renew the cycle. Such being the life history, it is no particular wonder that this coccus group, for apparently all the suppuration cocci alike fulfill this cycle, is found in many *bizarre* and unlooked-for situations. In situations which at first seem unaccountable, but which after reflection and a second thought are quite deprived of their element of impossibility and unexpectedness; they cease even to seem new. This life history probably belongs in general to all the figured elements, called "micrococci," really diminutive algæ without leaf green, found in a causative relation to the inflammation processes, of which we certainly now know and recognize three species and no more.

Micrococci of Suppuration.—These three species which have been found in causative relation to the suppurative processes at the roots of the teeth are as follow: 1. A coccus whose cultures are white, as is also the pus. 2. A coccus whose cultures are almost orange, while the pus is distinctly yellow. 3. A coccus whose cultures are cobalt blue, while the pus is a faint blue. 4. A combination of 1 and 2. Clinical picture not identified. 5. A combination of 1 and 3. Clinical picture is not identified. 6. A combination of 2 and 3. Clinical data conflicting, almost contradictory.

The details of these clinical pictures are not given here, as they are not in the premises germane. It is sufficient to say that the one producing the most trouble is 2, than which 1 is found more frequently in those cases where the suppurative process is either just below the border or line of contact between gums and teeth, while 2 is more often found in deep abscesses, such as those which discharge through the pulp canal. The one given as 3 seems to be implicated in the most trying of all suppuration cases. One of my correspondents who has sent me pus from a number of abscesses,

which he sees fit to call blue-green abscesses, says of it in his last letter: "I am coming to look upon this pus as a sort of hoodoo. Since you warned me about it I find it more frequently than I did, and I find such abscesses particularly hard to cure. They have a way of refusing to heal, a sort of recrudescent habit, which is trying to my nerves." He has found the white and yellow pus in the pulp cavities of normal teeth (sic!), but he has never found the pus of a greenish hue unless the teeth had obviously decayed. Another correspondent says: "I have seen pus with a green to greenish hue many times, but never so distinctly green as this, in which the tooth was seemingly quite normal." (Sic!) It must not be forgotten that every one of these figured elements can be found in mouths which the most careful examination affirms to be healthy, found not enclosed in phagocytes, but in full functional activity, ready to take any advantage or opportunity offered to them for getting in their work, for entering on their seeming predestined vocation and exciting suppuration.

Invasion of Micrococci Into the Tissues.—It remains to show how this is done. In forensic logic a case is considered as proved if it is shown that John Doe had the intention of burglary, if he is found in a house where he had no business to be, with the silver spoons in his pocket. Presumably the same logical conclusion may be drawn in this case, but it must be shown that the cocci had an opportunity for reaching the base of the tooth from the oral as opposed to the vascular side. It has been explained that at two periods of their lives these cocci are motile, the ameba is less in bulk than the coccus, say one five-hundredth the bulk of a colorless blood body, and it would take more than one hundred of the sporule bodies to make one ameba, hence the inference that they are very small indeed as compared with a blood corpuscle.

The line of contact between the gum and the teeth is not so close as to hinder such a crawling thing as an ameba is from making its way, nor would such a creeper have any difficulty in getting about among the tissue elements when such a giant as a white blood body can go about with comparative ease. Cross sections of the tissues in the neighborhood of the site in which suppuration occurs show that the tissue is less dense than many through which lymph corpuscles go without difficulty, and the lymph corpuscles are often found in the pericementum. That such cocci do in point of fact make their

way into this structure is an observed fact, for I have seen a slide in which was distinctly visible a phagocyte containing eight of these cocci which it had seemingly just gathered in and had now in safe custody, and in this specimen between the gum and tooth was a depot of cocci just beginning to set up an inflammation. This tissue is peculiarly well fitted for such an invasion from the mouth. Ameboid bodies of such small size can readily find their way even to the very opening of the pulp canal at the very root of the tooth, by keeping to the connective tissue bundle layer just outside the line of cells adjacent and in contact with the distinctly cellular layer in contact with the teeth. So compact is this connective tissue that white blood bodies move about in it with difficulty, but the ameboid cocci find it an easy way.

Granted then that the ameba form coccus has a convenient locus for its work, what happens? First of all the coccus encysts itself and becomes quite inert, motionless, quiescent; the disturbance it has made, if it has made any, which is doubtful, decreases to the vanishing point. How long it can remain latent and concealed we do not know, but long enough for its needs no doubt. Then comes the second motor stage, and as there is no opportunity for its exercise, it is of course, abridged and the spores begin to develop all in a bunch. Then there is a first-class disturbance, and cell proliferation goes on rapidly. It is a wrong kind of growth for the needs of the tissues, but it is the only one the cells around are equal to; stimulated they grow; the development is short lived, for the very growth cuts off the blood supply by mutual pressure. No better opportunity than this for the cocci can be imagined, surrounded by cells of lowered vitality, some dead, some dying, they feed to absolute repletion and increase accordingly, extending the depot in all directions, so rapidly indeed that by the time the tissues can take on any systematic defense the trouble has grown too great for cure by any means short of actual suppuration. A line of demarcation is made in the tissue, the scavenger cells enter the focus, and the formation of pus begins. While certain cells prepare a road for exit of the army which has made captive the invaders, the nerves of course are suffering, as are the other tissues, the increasing pressure causes pain, and a painful swelling results. When the road has been opened, the scavenger army and their captives—that is, the pus and broken down tissues—

are evacuated, repair processes begin, and soon the hole is filled by the cicatrix.

Such is the process of invasion and defense as shown by observation and study. The blood has no connection with the process save only incidentally in the fulfilment of the task laid upon it, the defense of the tissues. It is then a matter of observation that the invasion is from the oral side of the plane of contact, not from the vascular side. The blood conditions antecedent to suppuration are those which belong to health, to vital action. The blood's condition before the suppuration was *ad hoc* healthy; during the diseased action in the tissues the blood's action was for and toward the restoration of normal conditions.

To maintain that the condition of the blood is the cause of suppuration is equivalent to saying that the court which tries a man for stealing made him a thief. To repeat and insist as some men are doing that the peridental phlegmon is a manifestation of a dyscrasia, is equivalent to saying "The lessons which have been learned during the last thirty years by that portion of the profession which sees, studies, thinks, are lost on me; are lessons which I will not learn, as by not learning them I become notorious among my fellows, even if such notoriety is an omen of injury to my patients."—*Items, August.*

SUBMENTAL SINUS, A SEQUELA OF INFLUENZA, TREATED BY ROOT FILLING. By W. J. May, L.R.C.P., London. The case I wish to bring under your notice is that of a young lady, aged about 22. In December, 1899, she had a severe attack of influenza. She apparently completely recovered, but about six weeks later noticed a swelling under the lower lip in the region of the incisive fossa. An abscess formed and pointed under the chin. This was opened in February, 1900. The teeth were not suspected as a cause of the trouble. In April, 1900, a sinus still persisted, and the patient was admitted into a hospital in order that an operation should be performed, and she remained in hospital for a week.

The operation consisted, presumably, in examining the sinus and endeavoring to remove necrosed bone. In spite of this treatment the sinus did not close. In February, 1901, the patient came under the notice of a Dublin surgeon. He at once thought that the teeth, although apparently sound, were the cause of the abscess, and took the patient to a dentist of Dublin. This gentleman, seeing that the two

lower incisors were dead, had a skiagram taken in order to ascertain the length of the roots and to see whether any absorption had taken place during the prolonged suppuration. Finding that the roots were of normal length he decided that the teeth might be saved. He opened the pulp chamber and dressed the roots. As the patient was coming to London he sent her to me for further treatment. When I first saw the patient on April 3, 1901, she was considerably disfigured by a mass of granulation tissue beneath the chin, and also by inflammatory swelling of the integuments, due to pus becoming pent up within the sinus.

The treatment adopted was simply to cleanse the root canals in the usual manner and fill them with gutta-percha. The sinus was opened up and packed with iodoform gauze. I was able to pass a bristle through the apex of the left central incisor, but not through that of the right incisor. I always endeavor to pass a bristle in this manner when a sinus exists in connection with a root; as, however, from the skiagram I was certain of having penetrated to very near the end of the root, I did not persist in the attempt to get through. In three weeks the sinus had distinctly shortened, and in another fortnight it had become completely closed.

In the skiagram taken after the roots had been filled and the sinus had become closed it is noticed that the root-fillings present are not perfect, but I believe the result is as good as we generally achieve. You will see, also, that the cutting edges of the teeth are separated; this I attribute to contraction having taken place upon the formation of fibrous tissue at the apices of the teeth, the alveolus between the teeth acting as a fulcrum, having led to a separation at the cutting edges. I recently heard from this patient that she had had no further trouble.

A short time ago Mr. F. C. Wallace communicated to the Odontological Society the record of a case in which a misplaced third molar gave rise, during an attack of influenza, to symptoms simulating necrosis of the mandible. In this case an operation was undertaken with the view that necrosis existed. He raised the question as to whether the inflammation in these cases commences in the pulp and spreads to the periodontal membrane and bone, or whether the inflammation has origin in the tissues surrounding the tooth. He inclined to the former view, while Mr. Baldwin favored the latter opinion. I think in this connection our experience teaches

us that when a previously healthy tooth pulp becomes inflamed and dies, either from a general cause, as influenza, or from a local one, as, for example, too large a metal filling, periodontitis does not often supervene at once. It may be that the periodontal membrane will not become inflamed for six weeks after the death of the tooth-pulp, as in the case I have mentioned; it may not do so for six months, as in a similar case I have notes of; or the tooth may remain quiescent for years, becoming gradually discolored.

On the other hand, we know that when the vital resistance of a patient is lowered by even a slight cause, such as a common cold, and much more by a serious illness, periodontitis is very prone to occur in connection with such weak spots as unfilled or imperfectly filled dead teeth, and sometimes even with living ones. I am therefore inclined to think that inflammation and suppuration arising during an illness in connection with a tooth, either normally situated or misplaced, commences not in the dental pulp, but in the tissues around the tooth—namely, in the periodontal membrane if the tooth be normally situated; and either in the periosteum, or the dental follicle, or the bone, if the tooth be unerupted.

Discussion.—The president thought that Mr. May had raised a very important pathological question by the way in which he accounted for the condition of the patient, and had advanced a novel theory for the separation which so often took place in the lower incisors. It would be interesting to know whether the author attributed the separation of apparently healthy lower incisors to the contraction of tissue at their roots and the fulcrum of the bone between. It was an everyday occurrence in practice to see perfectly healthy teeth moving from one another. Mr. May's explanation seemed a very good solution in the case of dead teeth, but he did not quite see how it applied to perfectly healthy teeth.

Mr. T. A. Coysh said he had had a case identical with that of Mr. May in a girl of 16, with the exception that one incisor only was dead. Practically there had been no uncomfortable symptoms at all. When he saw her there was a slight swelling from the sinus below the chin, to which the patient and the dentist she had formerly seen had apparently not paid much attention. Obviously one of the lower incisors was dead, and it was drilled into, the root treated and filled, and the sinus then healed up without any trouble. In that case the incisor died from a blow. He saw the patient four

or five years after the root was filled; there was then no separation of the incisors, everything being perfectly normal.

Mr. E. Lloyd-Williams said that at the Dental Hospital that very day they had had a patient, a man of 26, with a sinus which had existed for twelve years, with apparently no lesion of the teeth. On carefully examining the teeth, one was found to have lost its translucency, and was supposed to be dead. It was drilled into and the conclusion found to be accurate. It had been treated exactly on the lines suggested by Mr. May. He was glad to have heard of the case, because it promised well for the other one, which had existed for such a long time. The pathological question was an interesting one, a discussion of which might take up a whole evening. He was inclined to disagree with the author on the point, thinking that the inflammation started in the pulp itself. He also argued from analogy. The analogous cases that were common were those of pyorrhea, where it was known that a suppurative periodontitis had existed for a long time. It was well known that in these cases the pulp retained its vitality for a considerable period after the suppuration of the socket had taken place. He therefore thought it was more likely that the inflammation started in the pulp in the same way as an inflammation in any other part of the body. The point with regard to the separation was also interesting. He believed it was due to pathological changes in the bone itself rather than to granulation tissue, because there was no granulation tissue in cases where there were healthy teeth, and yet they were always seeing them separated. He saw no reason why the bone should not undergo pathological change resulting in interstitial growth which tended to separate any teeth existing in the immediate neighborhood.

Mr. W. Hern thought the case illustrated the importance of examining the teeth to see whether they were living or dead in all cases of sinuses of obscure origin opening into the mouth or on to the face. He had come across cases on more than one occasion in which hospital patients been had sent up from the country to a general hospital with which he was connected to have some surgical intervention for the cure of sinuses about the jaws. Such cases had usually been sent on to the dental department before any operative procedure was undertaken, in order to eliminate any causes from the teeth, and it frequently happened that such cases had been

sent home cured without any more serious operation than the extraction of a dead tooth or buried root. With regard to the pathological question, he agreed with Mr. Williams that in these cases they were due to septic apical inflammation, set up by some of the septic contents of the pulp cavity being extruded from the point of the root. No doubt any depression of the general health, even a cold, would start an inflammation in a dead tooth with septic contents, but he considered that only a secondary cause, the primary cause being the presence of septic material in the tooth. He thought Mr. May's allusion to a remark made by Mr. Baldwin did not apply to the present case, as Mr. Baldwin was speaking of buried living teeth, or teeth in which inflammation commenced around the crown and not around the root. He thought the history of odontomes showed that buried teeth which were normal, or odontomes, usually remain quiescent as long as the soft tissues overlying them were unopened, and that the inflammation starts coincidentally with this communicating opening into the mouth by infection of the tooth sac with mouth organisms. He asked if patient had pyorrhea, which would explain the separation of teeth.

Mr. Baldwin said that when he spoke at the Odontological Society recently he referred only to buried teeth which developed an abscess around them. He thought in the majority of those cases the teeth were not dead and the suppuration commenced around the crowns of the teeth. Whenever the teeth were dead, as in Mr. May's case, he thought the most likely explanation of the inflammation was that it was septic inflammation set up by the escape of septic material from the pulp canal into the soft tissue. When teeth were killed by a blow, as probably front teeth generally were, the pulp became absolutely diffluent and decomposed in some way, and might or might not set up abscess. They much more frequently did so when it was a lower incisor, probably because the force of gravity helped the escape of septic material, and that result would naturally be assisted by any disease, such as influenza, which would lower the general tone and increase the number of microorganisms circulating in the blood.

Mr. Ashley Densham recorded a case which had come under his own notice, in which there was submental inflammation followed by a sinus in a child of 6. The surgeons who treated the case removed, through an opening made by enlarging the sinus, two im-

perfectly developed permanent lower incisors. The temporary incisors had become absorbed, and had recently fallen out. There did not appear to be any communication at all between the oral cavity and the crowns of the forming permanent incisors. In that case there was a very considerable amount of inflammation, evidently septic, and there was a very large swelling underneath the chin, which eventually discharged through a sinus. He quite agreed that the inflammation in most cases of buried teeth came from some communication with the mouth.

Mr. Clark asked if it was quite clear that the teeth were alive before the attack of influenza took place.

Mr. Farmer referred to a case where there was a small abscess at the apices of two lower incisors, with a great deal of swelling, but no submental sinus. The patient, a flutist, complained of tenderness when he placed the flute to his lips. At the apex of the right lower central and right lower lateral incisor were two small abscesses. The electric light showed that the pulps were alive, and that there was no dental cause of the trouble. Mr. Bland-Sutton saw the case, but seemed dubious as to the cause. After the pus was evacuated some spicules of dead bone came away and the parts healed up. Since this happened, three years ago, the patient had had no recurrence. There was no apparent lesion either in the teeth or mucous membrane, and no signs of the pus burrowing. Could any member account for the presence of pus under these conditions?

Mr. May said he had not the faintest idea why teeth moved in the extraordinary manner they sometimes did. He only stated that in his particular case, where the apices of the teeth were embedded in fibrous tissue, that accounted for the separation of the teeth. At any rate, they did not begin to separate at the cutting edges until the fibrous tissue was formed and contracted. A gentleman had asked him how he knew that the teeth died through influenza, and whether they were alive before. He did not definitely know that, but he argued it was so from the analogy of other cases. The teeth were only beginning to discolor, and if they had been dead for five or six years he should have expected to find them more discolored. He believed Mr. Hern and Mr. Lloyd-Williams agreed with him, although he would have a difficulty in showing why. They said that the inflammation commenced in the pulp. He

argued that in cases where previously healthy teeth died from influenza or other cause, periostitis and suppuration did not supervene in the majority of cases for some weeks or months, and then commenced in the tissues around the tooth, as a dead pulp obviously could not become inflamed. Supposing the patient had an attack of influenza, with swelling and necrosis arising during the attack, he would say that the teeth had been dead or unhealthy for some time previously, and that the lowered vitality of the patient had set up the inflammation and suppuration again in the tissues around the tooth.—*Jour. Brit. Dent. Assn.*

PECULIAR CASES OF DENTAL RESORPTION. By Otto E. Inglis, D.D.S., Philadelphia. Read before the Academy of Stomatology, November 26, 1901. It is a generally accepted fact that resorption of tissue is effected through the agency of cells belonging to the connective-tissue group and commonly called "giant-cells." These are large cells, either mononuclear or multinucleated, found to be capable of excreting a substance which liquefies or detaches small particles of even solid tissues, such as bone or even enamel. The resulting chemical product or particle is either washed away by the lymph-stream or taken into the body of the giant-cell and borne away.

These multinucleated cells are found in granulation-tissue, which in turn is in some form almost invariably found in apposition with surfaces or tissues undergoing resorption. It has been suggested that the solvent excreted is lactic acid, though there seems to be no demonstration of this fact. Theoretically, acid sodium phosphate would seem more likely to be the solvent, as surfaces undergoing resorption are eroded, not decalcified. The writer has endeavored in vain to get an acid reaction with litmus paper touched to the granulations, though numerous efforts have been made. It is quite possible, however, that any acid present may be masked by the general alkaline reaction of the blood plasma, while the giant-cell itself, excreting such an acid against a tissue, may accomplish its physiological object.

Resorption of deciduous roots occurs as a physiological process, while resorption of permanent roots is classed as pathological. There are also records of a few cases of resorption of the crown dentin of permanent teeth, presumably through the agency of giant-cells in

the dental pulp. In all cases it seems possible to refer the resorption to irritation with the production of a mild grade of non-purulent inflammation as a cause. There seems evidence enough to warrant this assumption. Pus formation retards or prevents resorption presumably through neutralization of the acid product of the giant-cells, the reaction of pus being alkaline. When pus formation is in abeyance granulations spring up.

In Gaskill's case of dentin resorption by the pulp the vascular alteration in the pulp was shown by the pink color transmitted through the enamel, this being evidence of a condition of advanced hyperemia or of mild inflammation.

Resorption of cementum and dentin occurs in resorption of deciduous roots, and is produced by the resorbent organ exterior to the tooth. In a certain number of specimens of loose deciduous crowns there may be found after extraction bays of resorption in the dentin of the crown. In a case of extreme excavation the entire dentin of the crown was removed by the resorbent organ, the enamel alone remaining. In a third case the dentin was largely removed and the tooth perforated upon the mesial side from within by the resorbent organ. A diagnosis of suffusion from hyperemia had been made, but upon rapid extraction the pulp was found as a large soft mass, but in a vital state within the crown; that is, the erstwhile pulp had become a resorbent organ. All appearance of suffusion disappeared with its removal from the crown concavity, and the tiny mesial opening was discovered. There were no signs of caries whatsoever. This case practically corresponds to that of Gaskill's, but adds the important fact that enamel might readily be resorbed by granulation-tissue from within. That in Gaskill's case is described as crushed in.

In a left lower deciduous lateral incisor, standing labially to the permanent left lower lateral incisor, extraction revealed a hyperemic condition of the pulp for a length of one-quarter of an inch from the apical end of the root, which was but slightly resorbed. The root end was transparent and the hyperemia visible as a clearly defined pink streak.

While the pulp may become involved in the resorbent organ and become a part of it, it does not of necessity follow that it does so under all circumstances, as some specimens show a condition the reverse of that previously mentioned. Tomes maintains that resorp-

tion of deciduous roots is a vital act not dependent upon the pressure of the advancing permanent tooth. If one observes, however, the numerous examples of resorption occurring at the pressure point, it will seem hard to accept the theory, even when resorption does occur without a tooth near by to cause pressure. Deciduous cuspids are notoriously retained late when the permanent cuspid erupts late, or anteriorly or posteriorly to the deciduous tooth. It is true that these deciduous cuspids are often later lost by resorption, but in all probability they have been somewhat affected by resorptive action during the descent of the cuspid. In a mouth recently seen eight deciduous molars were in place at about twenty-one years of age. There was no mechanical impediment to their shedding.

In the resorption of the roots of the permanent teeth aseptic irritation seems to be the proximate cause for all devitalized teeth, and where the pulp is vital it is not always possible to say that irritation is not still the cause. For example, some such teeth are in malocclusion, some in pyorrheal conditions, and in others marginal gum resorption or pulp irritation is going on. The existence of a dyscrasia is also recognized. A patient of mine lost a right lower molar by resorption after arsenic was applied to the pulp. I naturally connected the resulting pericementitis with a possible passage of arsenic through the foramen, and made a record of the case. Since then I have extracted two resorbed supernumerary molars, and have discovered that the lingual root of an upper molar is partly resorbed. The tooth is still in the mouth, but the lingual root has lost the alveolar process upon its lingual aspect by phagedenic pericementitis and resorption, a fact which enabled me to discover the loss of its apical third. The patient is a neurasthenic.

Among the specific recognized causes of resorption in permanent teeth are the following: Chronic abscess (temporarily in abeyance), plantations, protruding root-filling or broaches, looseness, and pressure. A certain number of cases are due to blows and malocclusion, a few to calculus and pyorrhea alveolaris. I have a specimen which shows a curious combination of resorption and calculus formation from a case of prolonged chronic abscess. The resorption doubtless was due to the formation of granulation tissue during such time as pus formation was absent or not active; or possibly the inflammation of the pericementum at a point contiguous to the area of pus formation might account for the resorption.

The frequent occurrence of resorption in connection with chronic abscess of long duration inclines me to believe that the former is the true explanation, especially as I have seen granulation *in situ* after extraction. It is, of course, possible that the pyogenic germs may eventually be shown to have some erosive action. At present such a view cannot be accepted without a demonstration; indeed, Green states that an ivory peg may lie in pus for weeks without visible effect, while it undergoes resorption if aseptically buried in the tissues.

A transient patient from the practice of Professor Eames of Boston presented an unusual resorption upon the lingual surfaces of four lower incisors, calculus being the exciting cause. The pulps were not exposed.

Resorptions after plantations are explained upon like grounds of formation of granulation-tissue, bony ankylosis being later brought about by a better tolerance and a constructive activity of bone-cells. The peculiar generally distributed resorption in cases of exfoliation after plantation is evidence of a general pericementitis. Curious resorptions of roots from about gutta-percha root-fillings, cotton root-fillings and protruding broaches are common.

A root may be perforated from the side to the canal, or even from side to side, by resorptive action. I have a specimen which shows a remarkable case of resorption of permanent roots simulating resorption of deciduous roots and due to the same cause, viz., pressure of an advancing tooth. The history was that of indefinable neuralgic pain about the upper third molar, necessitating extraction. When removed, the buccal roots being absent, it was thought that a fracture had occurred. An attempt at their removal resulted in the dislodgement of a fourth or supernumerary molar, the crown of which exactly fitted the area of resorption at the cervical third of the buccal roots. Other cases of resorption of permanent roots by advancing crowns of impacted teeth have been discovered by means of the Röntgen ray, and after extraction for relief of pain.

In some cases of impacted teeth even the enamel may suffer marked resorption, as in the case of a cuspid taken from the jaw of a lady sixty-five years of age. The tooth slowly erupting was upon one side of the gum and a gold plate upon the other. The resultant tumefaction was natural. Ulceration occurred; the crown came into relation with the oral fluids; granulations formed upon the under

surface of the tumefaction, with the result that resorption, but no caries, supervened, or, indeed, may have occurred previously, as it was present and obvious to instrumental diagnosis for months before extraction. Miller recently, and Cryer previously, have noted the condition of enamel resorption. Another specimen in the writer's possession shows a circumscribed bay-like resorption of enamel and dentin. The term resorption having been objected to as not applicable to enamel, it may be said in defense, that it seems better than the term "absorption," for though not deposited by mesodermic tissue, enamel is removed in the same manner as tissues of mesoblastic origin, and to be exigent would be to necessitate the abandonment of the word in connection with nerve-tissue as well.—*International.*

PYORRHEA ALVEOLARIS. By F. E. Howard, M.D.S., Buffalo. Read before the Eighth District Dental Society of the State of New York, February 25, 1902. By one prominent in dentistry it has been said, "It is the reproach of dentistry that the disease which causes the most trouble is the least understood." This subject will be a rich field for investigation for a long time to come. Although it has been touched upon by writers since 1740 (P. Fauchard) to the present, much is yet to be learned. Dr. John T. Riggs was among the first to give this condition special clinical attention, some twenty-five years ago, and for some time it was termed "Riggs' disease." A great diversity of opinion exists both as to the origin and the treatment of this affection. It is fair to presume that the cause is sometimes local and sometimes constitutional, and at other times both. The disease has not developed with civilization, but dates back to the cave-dwellers in this country, and "In the museum at Constantinople are the skulls of soldiers who fought at a battle in 328 B. C. One of the skulls has the anterior alveolar process entirely absorbed away; the roots of the right central, the right lateral and the left central incisors are exposed." I mention these cases only to remind you that this disease is nothing that has manifested itself latterly.

Dr. Peirce charges the disorder chiefly to systemic predisposition, and enthusiastically advocates the theory of Reese, as to the influence of the uric acid diathesis. Dr. W. X. Sudduth strongly argues for the lactic acid influence as a local factor in the disorder. He also

speaks of this as a localized catarrhal stomatitis, which may be either acute or chronic. Dr. Miller has expressed his opinion that the disorder is of a parasitic nature. Dr. Talbot regards the disorder as local, due to both local and constitutional causes. The disorder begins with simple inflammation. He terms it "interstitial gingivitis." Dr. J. D. Patterson believes that the disorder is of catarrhal origin, and states that out of thirty-eight cases of well-marked pyorrhea observed by him thirty-three presented undoubted evidence of nasal catarrhal conditions. Dr. S. N. Niles considered that constitutional conditions were, as a rule, without influence, and local irritating deposits to be the cause in twenty-five per cent of the cases coming under his observation. He was of the opinion also that the amount of calcium salts taken into the system in drinking-water exerted an influence. A calcic and phosphatic diathesis has an influence in the production of the disorder. Dr. Bonwill believed that the disorder is due to thinness of the alveolar process between the teeth, such condition depriving the peridental membrane and gum tissue of proper support. The want of proper articulation of the teeth also exerts an influence. This theory is supported by others. Dr. C. J. Essig was of the opinion that its predisposing causes were unknown, that it occurred as a rule in healthy persons, and that irregular and crowded teeth acted as an exciting cause. Dr. G. A. Mills thinks that the disorder is of systemic origin. Various mental and physical influences aid its progress, such as nervous exhaustion and bodily and mental overwork. He notes that it frequently occurs with children and in convalescence from eruptive fevers, and considers that the deposit is only a local manifestation of the disorder. The exciting causes may be purely local, or may be local expressions of constitutional influences and states. "Thus it will be shown that the influence of the uric acid, when present, is exerted as a local irritant and not a constitutional factor. . . . The theory urged so strongly by Dr. Peirce, also advocated by Dr. Kirk, is the uric acid hypothesis, once very dominant in medicine, but now losing ground. The trend of medical opinion is to consider it one of the danger signals of autointoxication, which assumes prominence because of its tendency to excite local irritation." With a number of experiments conducted in different colleges in the interest of this subject upon some 900 teeth it was plainly shown that uric acid was only a factor in these cases, averaging only five per cent. Dr. G. L. Curtis says

that real pyorrhea alveolaris is always caused by syphilis. This disease is not confined to man alone, but affects dogs, cats and other animals, as shown conclusively by Talbot's experiment.

To sum up: My observations lead me to believe that pyorrhea alveolaris is largely local—perhaps in some cases aggravated by constitutional causes. The local causes are lack of cleanliness, neglect or inability to keep the parts clean; deposits occur, and inflammation ensues, and from a single point the trouble extends. In my judgment one of the causes to promote this disease is the fact that at the time of life when this phenomenon is presented these teeth usually possess a low degree of vitality, and in many cases they are not in harmony with their surroundings, the more vascular tissue, and these organs act as local irritants. They are repelled by nature on the part of the higher organized and more sensitive tissues.

It has been shown conclusively that the administration of certain drugs will promote pyorrhea alveolaris. Calomel, plumbic or brass poisoning, arsenic, iodid potassium, and tartar emetic, under some circumstances will irritate the weak membrane. I find in a large percentage of cases that the patients are afflicted with catarrh—many are of a catarrhal diathesis. I have observed that these subjects are not particularly prone to gout or rheumatism, neither do many appreciate that they have an excess of uric acid. On the other hand, I recall to mind many people that have been great sufferers from rheumatism and gout that have no tendency to pyorrhea alveolaris whatever, and they are well advanced in years. Many of these subjects are of a very robust and healthy class, never realizing that anything is wrong with them.

The dentist must see the patient often enough to keep the teeth free from deposits and keep down the inflammation. If this be accomplished the disease will be under control. The deposits must be removed from all surfaces, otherwise no amount of medicating will avail anything. If this be accomplished, and the alveolar process be not too much absorbed, and the teeth not in a very loose condition, a cure will be effected. There is sometimes great advantage derived by devitalizing the pulp. Nature's effort to supply the pulp is relieved by devitalization, and greater energy is thrown into the cementum, and at the time of life when pyorrhea is present there is little call for pulps in the teeth that are marked by this trouble.—*Cosmos.*

"PAINLESS DENTISTRY." Notwithstanding the adverse experience of the many victims of company and parlor fakirs, "painless dentistry" is a catchword which, at much cost of printer's ink and signboard lettering, it still pays the quack to juggle with. The staying quality of this fetching phrase, while doubtless based chiefly upon the gullibility of a public too ready to yield credence to any mendacity so it be sonorously reiterant, has also another significance, the existence of a desire for exemption from suffering so deep-seated and universal that it is ready to grasp at the most unhopeful agencies for its realization.

As a sensory manifestation pain is, of course, subjective and to a great extent relative, varying directly with the susceptibility of the organism. With the human family the degree of this susceptibility is dependent upon a complex of conditions too obscure and varying for analysis or classification. As a rule, however, the higher the intellectual development and the more exhaustive the drain upon the higher centers of nervous energy the greater the impressibility of the sensory areas to excitation, whether painful or pleasurable in character.

Americans, perhaps beyond all other nations, are as a people living under such conditions of nervous strain as render them peculiarly susceptible to and impatient of suffering. If, as has been said, this is "an age of anesthetics," it is because it is an age in which the need for a deadening of susceptibility to painful impressions is widespread and imperative. The alchemy of to-day no longer seeks for the elixir of life, but for the nepenthe for life's every anguish. This found, the need for further search for the philosopher's stone has ceased, for in the isolation and synthesis of principles of pain obtundents modern chemistry has hit upon the true formula for transmuting to gold the lesser elements of the organic and inorganic world.

Paradoxically enough, while modern anesthesia owes so much to dentistry, dentistry of all branches of the healing art owes probably the least to anesthesia. Indeed, it has been claimed that by making painless the extraction of teeth millions have been sacrificed which otherwise would have been preserved for useful work. Certain it is, that could tooth-saving be made as painless as tooth-pulling, this regrettable result would be vastly modified for the better.

In a recent paper a "distinguished divine" is quoted as saying: "It is true you (dentists) are a long way in the rear of surgeons in

the matter of pain avoidance. There is a brutishness of persistence in operating that in the public mind stamps the dental chair as a place of torture, to be driven to as a last dreaded resort." While without important qualifications this severe arraignment cannot be accepted as entirely just, there can be no question that, whether justly or unjustly, our clinical critic has but voiced a widespread public sentiment. To paraphrase the words of Velpeau, pain and dental surgery are words "which never present themselves separately to the mind of the patient," and the ministrations of our art are universally regarded as among the minor ills of life not the less to be dreaded because inevitable.

That this condition of the public mind is to be deprecated, and that it constitutes a serious handicap to professional interests, material and otherwise, are self-evident propositions. Of all the many measures designed to advance professional welfare with which dental literature has been so prolific, nothing could approach in far-reaching efficacy any system or method which could secure a dentistry really painless and not at the same time more or less worthless. That the solution of this problem is attended by almost insurmountable difficulties every practical dentist knows. The chief trouble is not that there is a lack of pain-obtunding agencies, but that their successful application often demands conditions not readily attainable, and not infrequently calls for the employment of measures which are in themselves painful.

The most hopeful feature of the situation, however, is a notable modification of the point of view and a readjustment of values in dental practice. Hitherto the tendency has been to regard the treatment of the conditions arising from dental caries too exclusively from the mechanical standpoint, and to call "good work" only that which compactly fills with gold a carious cavity and more or less completely restores in that material normal tooth contours.

The truth is, however, that what may be very good work viewed solely in its mechanical relations to a tooth may be bad work for the tooth therapeutically, and for the patient very bad work systemically. Certainly no perfection of adaptation, strength or artistic finish in a filling can be regarded as the all-sufficient justification for an operation which causes hours of acute suffering and results in nervous collapse. When the dentist regards his professional duties from the true point of view such malpractice becomes impossible,

for his first thought is for his patient, whose physical and mental characteristics, susceptibility to suffering and powers of endurance all must be carefully considered in determining the character and extent of the restorative, protective and remedial operations to be performed upon the teeth and associated tissues.

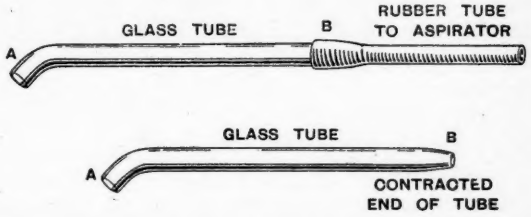
If what is somewhat fallaciously termed "permanent" work cannot be done without too great a strain upon the vital powers of the patient, the dentist of to-day has at his command a long list of filling-materials of reasonable durability, easily placed, and as readily renewed, and singly or in combination admirably adapted for a wide range of cases. His armamentarium holds also a large number of obtunding and anesthetic agents, by the use of which in a vast majority of cases painless instrumentation is possible.

The chief barrier to the more general and successful application of obtunding agencies in dentistry has been the element of time, which to the busy dentist, and hence, of course, to his patient, means money. By suitable office arrangements, however, it is entirely practicable, with or without an assistant, to perfect obtunding processes in an apartment or space separate from the general operating-room, thus leaving the dentist free to devote to other duties the period of delay.

While absolutely painless dentistry may long remain an unattainable ideal, there can be no question that the commandment, "Thou shalt not give needless pain," should be regarded as one of the most obligatory in the dental decalogue, and that he who best observes its spirit in the routine of daily practice will have wrought best for humanity, for himself, and for his profession.—*Editorial in Brief.*

REMOVAL OF PORTIONS OF SUSPICIOUS GROWTHS OR ULCERS IN THE MOUTH FOR MICROSCOPICAL EXAMINATION. By T. Law Webb, M.B., Ch.B. (Shrewsbury). I have made rather a special study of malignant diseases, carcinoma and sarcoma. Your president was kind enough to ask me to read a paper on Early Diagnosis of Malignant Disease of the Mouth. I was obliged to decline for the simple reason that I thought dentists knew a great deal more about that matter than the general practitioner. I can prove that by referring to two cases in which malignant disease was diagnosed by dentists in this town long before any doctor suspected it. In one case the epithelial growth was discovered by Mr.

Mugford in a medical practitioner. There the dentist distinctly scored off the general practitioner. There is this to be said, however, that when a patient with malignant disease of the mouth comes to the general surgeon he has a good big lump or a large ragged ulcer, which anybody can see is malignant, but there are cases where there is a suspicious little papilla or raised plaque, and there is a doubt. Sometimes you will find there is a suspicious ulcer with raised edges. The thing is, of course, to settle what that may be, and you generally have to resort to snipping off a piece of the mucous membrane for microscopic examination; and here as a pathologist I must entreat you to take a deep enough snip when you do take it, for it is exceedingly vexatious to find a tolerable large piece, as to surface, going hardly deeper than the mucous membrane. As epithelioma is



the common malignant disease of the mouth, you want to have some submucous tissue as well, to see if the epithelioma grows deeply down. I tried to get my *confrères* at the Infirmary to be particularly careful to take a deep cut, but they found this very difficult to do. I therefore suggested a little bit of apparatus which I thought would facilitate taking a good deep snip. The apparatus is composed of pieces of glass tube of little more than three-eighths inch in diameter and slightly curved at the end. These tubes are intended to be attached to an ordinary aspirator. On placing the tube on the little bit of tissue you wish to remove, and pressing it lightly down, you turn on the vacuum, and a papilla of mucous membrane is drawn up into the tube, so that with a pair of scissors it is tolerably easy to cut off a bit of the mucous membrane. The vacuum causes the little piece of tissue to pass into the tube, and you do not lose this. This simple apparatus has one or two advantages—it takes a deeper cut, it does not tear into rags the bit of tissue, and the little piece of tissue is not swallowed.

I do not wish to dwell upon the great importance of diagnosing

these cases. As a pathologist, I know it is all important that you should get a good piece because you cannot diagnose it absolutely if you do not get a piece large enough to make a proper section. Again, the position in which growths occur rather modifies the form of them. In the case of the medical man who had a fatal epithelioma, the epithelial growth sprang from the socket of a tooth which had been recently extracted. Another case occurred where the growth was upon the floor of the mouth just at the side of the tongue, a softish lump, thought not to be malignant, but which proved to be a mass of epithelioma. That impressed upon my mind the fact that epithelioma is a new growth, a tumor. We so often see it as an ulcer that you can hardly conceive of it as a new growth or tumor, but it is so, to begin with, in all cases.—*Jour. Brit. Dent. Assn.*

ORGANIZED WATER AS A FOOD. By John Uri Lloyd, Cincinnati. Read before the American Pharmaceutical Association, September, 1902. Some years ago a professional friend declined a dish of soup, stating that he did not care to load his stomach with so much water in order to obtain the trifling amount of nourishment it contained. Shortly after this the writer listened to an able paper read before the Cincinnati Section of the American Chemical Society on the subject of "Foods," and in this paper was struck by the fact that the nutrient value of the respective foods was determined through consideration of materials absolutely free from water, which brought to his mind the observation of the professional friend before alluded to.

Without a doubt the majority of people accept that the function of water in food substances is that of a solvent only or as an inactive vehicle provinced only to carry food to tissue and bone. They believe that the object of water as a drink is to dilute the fluids, wash impurities from the blood, and carry off worn-out tissue. Water is not seriously considered in the light of an integral part of food by anyone, such solid substances as starch, sugar and nitrogenous and fatty tissues being usually cited as the constructive and heat-producing agents. Our works on digestion and on general physiology state that most foods are three-fourths water, and the human body, bones included, over two-thirds water, but yet consider water irrelevant as a nutrient. The upbuilding and tearing down of tissue, the production of salts and products of disintegration, both normal and abnor-

mal, are studied solely from the basis of molecular change, in which nitrogen, hydrogen, carbon and oxygen play their respective parts as such.

With this thought in mind, let us for a moment consider the part of water as an organizing structural agent in certain salts, because many inorganic crystals depend for their form and structure on water of crystallization. But, it may yet be argued, after having gone through the list and studied their various deportments, that crystals are dead structures; organic bodies are now the subject of discussion. Take, then, the jelly-fish, that transparent, quivering, vitalized something, shaped after laws as uniform in action as a mathematically-made creation can be. It possesses the power of voluntary action and lives upon structures seemingly much higher in life's scale; has the power of attacking the higher animals, and possesses in itself an individuality that renders it a living, moving creature. On being dried it almost disappears, leaving a film of varnish possessed of so little solid matter as to disturb the thought of one who attempts to argue that the water of this creature is simply water of association, devoid of any other quality than that of ordinary water.

Consider some species of fungi that spring up in a night and in the sun the next day dry to bare fragments of themselves. In their natural condition these water-structures partake not only of the attributes of their respective species, but are most marvelously exact in every detail, possessing qualities that seemingly forbid the thought that the great mass of water present is simply a carrier of insgnificant amounts of solid matter.

The cabbage, the apple, the fruits of our orchards, the vegetables of our gardens, contain in all cases an enormous amount of water, if we consider the fluid part of the mysterious liquids present in vital juice and organic structure as simply water. Here we are confronted with conditions in which relationships between the large amount of water and the small amount of solid are such as to tolerate the view that this water of combination may be a something very different from pure water, or water obtained by tissue destruction. With such complex examples in mind, we are led consistently to inquire whether such dishes as soups and other aqueous liquids, and water-bearing or water-assimilating foods, can, as tissue-feeders, be in themselves anything beyond simple solutions of solid matters in water.

In order to make a nourishing soup it is not alone necessary to mix water and solid material. Good soup of complex composition requires for its production a certain amount of manipulation, such as boiling, seasoning and cooking. These processes are purely physico-chemical, and productive of numerous dissociation and combination products. The question is, has the water that is used in the making of a soup, by the action of heat, simply dissolved certain salts and tissues, or has it combined with organic constituents in a way that will make a nourishing liquid or a series of water combinations, in which water exists, it is true, but with altered qualities?

Nitrogenous food becomes a supporter of nutrition in a manner impossible in a case of pure nitrogen, which is not available as food and cannot be assimilated as such. Carbon as carbon, pure and simple, is useless as a food. Hydrogen serves its purpose as a food only when in combination. These three bodies are constituents of food, and when obtained by destruction of flesh and fat are cited by food theorists as a basis for calculating food values. Yet in a state of isolation they are not available as foods. Only when combined with water, or by means of water, do they become tissue-builders or heat-producers, and of this fact the analyst takes no account whatever beyond a bare reference to the presence of water as such. However, the object of the writer is not in any way to oppose the work that has given us the values of these elements as such, in nutrition. These investigations need not be disturbed, nor need the vital importance of these elements, even if full credit be given the province of the water molecule.

Nations widely separated may thrive upon food structures unknown to each other, but never does man or animal dispense with water of combination, and most animals must drink water as well as eat it. This fact of observation brings us to the question before intimated, as to whether it is possible for liquid foods, or foods hydrated during the process of mastication and digestion, to be possessed of chemical characters as yet outside the equation of our known chemical equivalents? In other words, do undetermined molecular combinations that ensue during cooking, as well as mastication, create complex, nutritive water structures, capable of carrying their qualities to the tissues they finally reach and nourish by reason of their easily alterable structures?

We call water driven off in the drying of fruit or food of any kind,

water of separation. May it not be rather the result of structural molecular decomposition? In the cooking of dry foods we not only change their structures as regards relationships of solid constituents, but add thereto the qualities that combined water gives under conditions as yet obscure. The same is true of vegetables and fruits. Should we not look on such water, necessary as it is to life, digestion, and tissue replacement, as an integral part of food, instead of simply a carrier of food? It is indeed probable that the student of dietetics must soon broaden his field and consider foods in their structural entirety, rather than from their analytical created ultimates. The method of the analyst now is to first kill the animal or vegetable, then destroy the tissue, then disrupt the molecules. The final result gives him inorganic elements and a few characteristic chemical structures, on which he bases his tables concerning food valuations. Is this just, in the light of what we know concerning the province of vitalized structures as a whole; is it rational, in the light of what we know concerning the worthlessness of chemical elements in foods? Is it not more rational to accept that the exceptional value of albumen and other nutrients, as typical foods, rests on the water compounds so nearly in accord with tissues craving just such vitalized water-bearing structures?

But to pass to a point beyond molecular water itself, which in both crystal and colloid tissue is capable of expulsion by desiccation. When organic matter is perfectly dried, a considerable portion of the residue is found to be composed of elements that might have been derived from or subsequently might be combined into water. Take from desiccated tissue the elements that might have come from water dissociation, and, comparatively speaking, we have but a small amount of residue.

Consider the soups, custards, gelatin, pies, fleshes, fish and fruits of all kinds, and even bread, which contain in themselves enormous amounts of water, in most cases the larger share of their weight being water, and observe the composition of the solid materials that remain after they are dried. These, too, are found to be made up of elements that in themselves may have been derived from water—fragments, we may say they are, of broken water molecules.

Consider the carbohydrates, dry as dust, sugar being typical of these, in which the elements of water are combined with carbon in the very proportions necessary to form water. The largest amount

possible of a water-producing compound (pulverulent water) is here artfuly stored in contact with the great combustible, carbon. We have series of food solids, differing only in the proportion of water present (sugar, starch, glucose, etc.), and that many combinations of one substance and water in different proportions exist, is shown when we consider series of hydrated salts exemplified by such bodies as the crystalline manganese and sodium sulphates, etc. We should not suspect that such have an existence but for the fact that as definite water compounds they assume a visible form and become sensible to sight and touch. But of the liquid outreaches connected with changes in colloidal metamorphosis we know next to nothing. If this shading of compounds, differing only in water compounds, is true of such elementary salts and solid foods, may not water be combined in an untold number of liquid organic structures that are as yet invisible, uncrystallizable, unreachable to our senses as organized bodies?

But enough for the present. In a time to come it may be clearly seen that students of food and digestion have not given sufficient prominence to the one thing that supports life, governs life, nourishes life, that feeds all structures, that constitutes the larger share of all organic tissues, but that strangely enough in itself is now viewed as a carrier only of something else.

We feel justified in anticipating that the immediate future will give a more extended view than the circumscribed atomic theory affords, which to this date, as a stepping-stone, has served the world well. Shall we then perceive that the vitalized water of organized water-bearing foods, and the combined water of such foods as carbohydrates and fats, are the foundations of the real foods for tissues, affiliating other materials, such as nitrogen, carbon, hydrogen, necessary in their field, but subject to the dominating agent, water? Organic chemistry has been defined as a study of the migrations of the carbon atom. May we not anticipate that organic structures will then be defined as products of the migration of the water molecule?

Possibly the makers of food products of the future will give less attention to analytical values concerning dead elements and more to vitalized and vitalizing structures in which available water is conspicuous. Possibly it behooves us even now to ask if a closer inquiry into the water molecule, *the vitalized or easily vitalized water mole-*

cule and its many shadings, may not open up a field for the construction of more rational food products.

CLOSING SUPERFICIAL INCISED WOUNDS. Dr. A. G. Bretz (*Medical and Surgical Monitor*) believes his method very simple, and describes it as follows: Given a wound on the forehead, for instance, after cleansing and preparing it in the usual way, dry the adjacent surface thoroughly and then apply a piece of adhesive plaster on either side of the wound, the size of the plaster and the distance from the edge of the wound to be determined by the length and character of same. However, it should be of sufficient width to give ample area for adhesion, which should be not less than one-fourth of an inch and not nearer the wound than one-fourth of an inch. Raise the inner edges of the adhesive strips and insert interrupted sutures through them instead of through the skin, draw together and tie. This coaptates the edges of the wound even better than stitches through the skin. The wound is then dressed in the usual way. First, it prevents the painful process of inserting stitches, of which all patients have such a dread. Second, it does away with the possibility of stitch-hole abscess and the trouble caused by particles of sutures being left in the wound on removing the stitches. Third, it prevents the stitch-marks, which always add to the unsightliness of the scar. Fourth, in cases of wounds inflicted by a blunt instrument, which caused bruised tissue immediately surrounding the wound, there are no stitches to tear out the friable tissue. There is no puckering between the stitches; the first stitches coaptate the edges, and the others make the closure permanent. There are many other advantages besides those enumerated above.

TO ADJUST THE PARTS OF A BROKEN VULCANITE DENTURE AND GET A MODEL OF THE SAME. By Dr. Joseph H. Noble, Philadelphia. Pass a cake of modeling composition through the flame of a Bunsen burner until one surface is soft, the other surface remaining rigid. Lay the cake on a flat surface, soft side up, and press the occlusal surface of the artificial teeth into it, getting the pieces of the denture in approximately their proper relations. Then, using both hands, correctly adjust the several pieces. They will move readily in the soft composition and will stay where placed. Harden with cold water to prevent the accidental

moving of the parts. Now pour plaster into the lower part of a flask, and after placing some also on the palatal portion of the denture, place the denture in the flask. When the plaster has hardened remove the modeling composition, remove the pieces of the denture, and proceed as usual. The cake of modeling composition should not be much larger than the denture, at most not so large as the inside diameter of the flask. In the case of a broken lower it is sometimes advisable to run the cast first, not placing it in the flask until the compound has been removed. The same compound can of course be used again. Soften it in hot water and roll to the desired thinness on a piece of glass, with a roller such as is used by the photographer for mounting photographs. Excellent sheets of modeling compound for base plates may be made in this way.—*Cosmos.*

COMPLICATION FOLLOWING REMOVAL OF ADENOIDS. By E. A. Montenyohl, M.D., Akron, Ohio. A female child, aged 5 years, suffering from a very aggravated form of enlarged tonsils and adenoids, was operated upon in the usual manner under chloroform narcosis. Nothing unusual was noted about the case until three days following the operation, when characteristic choreic movements were seen to develop in the muscles of the face and rapidly extended to the extremities. The child was extremely nervous and peevish and would cry out at the least excitement, and was unable to sleep without hypnotics. An acute endocarditis ensued and rapidly took on grave manifestations, with the temperature at 105° F., and respiration 50 for several days. Gradually the symptoms subsided, leaving a chronic heart condition, with the chorea not much benefited. About two months after the acute manifestations the choreic movements disappeared, and the child seemed to suffer little, except that when she played too hard she would complain of fatigue. Chorea and acute endocarditis following the removal of adenoids and enlarged tonsils is indeed very interesting and unique from an etiological standpoint. As there was no history of rheumatism in the family, I have thought that the complication might have arisen from some sort of infection from the seat of operation. The child did not appear to be frightened before the administration of the anesthetic.—*Pediatrics.*

Letters.

THE BOSS TAKES A DAY OFF

(AS TOLD BY THE OFFICE BOY.)

One day says the Boss, "James, things ain't movin' at Lightnin' Speed in the Offis, an' I'm feelin' Low Sperited an' Dissatisfied, so I'm agoin' Fishin' to-day fer a Change. Dock Knowital, a bright young student in the Dental College, has agreed to keep Shop fer me. They say he's the Smartest one in his class, so I reckon you an' him kin manage matters all O. K. You show him where things is, an' kind o' help him out, James." So when Dock Knowital come I seen right away that he was Offul Conceity an' looked like he wouldn't take no Advice, an' I knowed I'd got to be Middlin' Firm with him, er he'd git the Upper Hand of me. Says I, "I'll start right with him." So after the Boss had went, I went in the Laboratory where Dock Knowital was Polishin' Up a Gold Tooth what he wore on his Scarf, an' says I, "I'm agoin' out a spell, Dock. You may Tend Bell till I come back. If people wants matters attended to that you don't understand, you have 'em wait till I git here. I won't be gone so long."

So then I looked reel Stidy an' Composed, an' went out. "Wait a minute," says he, "You've fergot somethin'." Says I, "What?" He never answered at first, but he walked up to me an' ketched me by the Ear, an' shoved me down in a Chair. He yanked off my Hat an' slung it in a Corner.

"You've fergot who's runnin' this Mill jis' at Present," says he, Sarcastic Like. "You've got Nerve enough to Tone Up a whole Surgical Ward. You ast me, nex' time you want to Go Out." I seen then it wasn't so Offul Urgent about me agoin', after all, so I set still, not reely wantin' to Rile him. Says I to myself, "You've got the Best o' this Game at present, Mister, but you wait an' you'll see where you Land before the Day is ended."

It seemed like Luck begun playin' right into my Hands from that Minute. The Bell rung, an' I let in Miss Watson, what's the Sourest old Maid in the city, an' the Boss he said he was expectin' to have a Dandy Time gittin' impressions of her Jaws before long. They was Four Lower front teeth that was so Loose they was liable to Drop Out every time the Clock Struck, an' the Upper Teeth wasn't much

better, an' they Stuck Out like a Fan, so that the Boss he insisted she'd got to haf a lot o' them Out, before he'd undertake to git a Impression. But Miss Watson she wouldn't heer to havin' a Single One o' the Lot pulled out, an' she insisted he'd got to git the Impressions, somehow, with them all in. So there it was, an' the Boss he said he'd haf to use the Dustpan fer a Tray, them Upper Teeth flared out so.

So then I called Dock Knowital, an' says I to him, on the Sly so as the lady wouldn't Heer, "Ef she wants you to take her Impressions, I wouldn't do it on no Account. The Boss he's been a-dreadin' to have her Come In, this long while, an' he said he'd give any man Ten Dolers to git him out o' the Scrape. Ef you don't want to git in Trouble you take my Advice, an' don't you have nothin' to do with the Case." Dock he Smiled pityingly, an' says he, "James, you set in the Hall an' Tend Bell, that's all you need Do. When I need your Advice I'll ask fer it."

So then I went back an' I told Miss Watson, says I, "They's a young man's got charge o' Matters to-day, the Boss bein' out o' Town, an' he'll come an' take the Impressions, presently." Then she riz up an' says she, "I prefer to have Doctor Contour do it; I'll call another Day." So says I, in a Low, Confidin' Tone, "Ef I was you I'd let Dock Knowital do it, fer he's got the latest improved way of takin' Impressions, an' he don't put you to the Slightest Inconvenience, an' it's reely a Pleasure to have Impressions took by him. An' the Boss he's gittin' kind o' Old, an' some says he can't see no more, at least not good enough fer takin' Impressions, an' he ain't Kep' up with the Times so Offul Well, an' he's losin' ground in the Perfession, like Sixty."

It seemed kind o' Mean to Knock the Boss thataway, but it was a Desprit Case o' havin' to Git Even with Dock Knowital, even ef it Totally Ruined the Boss's reputation. So then Miss Watson she seemed to Reckon it might do, after all, an' jis' then Dock Knowital a-comin' in from the Laboratory, abowin' an' Scrapin', she begun Simperin' an' Sniggerin' an' Makin' Eyes at him. Though his Actions ain't what I like, exac'ly, Dock Knowital he ain't so Bad Lookin', an' even while I was introducin' her an' him, I seen he'd made a Mash. But she still had Presents of Mind enough to ast him was he Gentle, an' had he ever had a Impression Took himself, an' was it reely so Offul Bad. An' Dock he said it wasn't, not a Bit,

ef you knowed your Business. Then he examined her Mouth, an' he said them Front Teeth had orter be out first, an' she said jis' what she'd said to the Boss—that she wouldn't part with one o' them teeth fer Money. So then Dock he concluded he'd Haf to do her Way, an' he turned to me an' says he, reel sharp, "James, the Bowl an' Plaster."

So I went out an' Brung them, an' I Brung a Tin Cup full o' the Hard Kind o' Plaster that the Boss uses fer makin' the Casts, 'cause I'd heered the Boss say it wouldn't Break so easy, an' I was afeard ef it did break it might break one o' them Long Teeth, at the same time. (This is what I explained at the Inquest, as you might call it, the Nex' Day, when the Boss ast me how it all Happened.)

So then Dock Knowital he borryed a Big Tray from Dock Peabody, fer the Upper Jaw, 'cause none of the Boss's was Big Enough, an' then he Mixed the Plaster an' Rammed it Home. While it was a-settin' says he, "James, they's enough Plaster already Mixed fer another Impression; what's the Matter with us takin' the lower Impression at the Same Time? It's a New Invention o' mine, an' they're agoin' to Adopt it at the Dental College." So I said that was indeed a Rowdy Idee, an' why couldn't the Boss never think o' New Ways, like that, an' then I filled a Lower Tray, reel quick, an' everything bein' ready Dock pried her mouth apart about Seven Inches, an' stuck that in too.

When she felt her mouth so Full Miss Watson she seemed to be Seized with a Sudden Panic, an' she made a Snatch to pull one o' the Trays out. Says Dock, "You mustn't do that; keep perfectly ca-am an' composed. Matters is progressin' finely." All the while she was a-gulpin' an' a-heavin', an' her Eyes looked Wild, like a Calf when the Butcher Boy twists his Tail to make him walk Spanish an' to help him Git up in the Wagon. Presently says Dock, "They're all done; now we'll take them Out"—like it was a Pan o' Biscuit bakin'.

Meanwhile I'd jis' come in from the Laboratory where Dock Knowital had a Rubber Job vulcanizin', an' I'd concluded I'd learn him a Lesson, so I'd took a Lighted Match an' held it clost to the Bulb of the Thermometer on the Vulcanizer. Says I, kind o' Off-Hand, like it was somethin' I'd jis' happened to Notice, "Dock, the Electricity in the Vulcanizer is up to 498, is that All Right?" You'd orter seen him jump! He Yelled, "Turn off the Gas, quick, quick!

She'll bust wider than a Barn, ef you don't!" Says I, lookin' kind o' like a Baby wonderin', "What'll bust?" He never gave me no answer, but he run in the Laboratory, an' presently I heered a mos' Turrible Sizzlin', like he was pourin' water on the Vulcanizer. "We've had a Narrer Squeak fer our Lives, James!" says he, Tremblin' so he couldn't hardly Talk. "What sort o' Blamed Machine is this, anyhow, to run up from 320 to 498 inside o' Four Minutes!"

"It's out o' order, I reckon," says I. Then after a Minute says I, kind o' like I didn't want to have him think I was too Smarty, "Do you reckon that Plaster is about Set Enough, yet?" He dropped the Vulcanizer like it had Ixploded, sure 'nough, an' ran back in the Operatin' Room. Miss Watson she seemed to be havin' a fit o' the His Teeriks, by this Time, though to look at her abody might of guessed it was Mumps. She'd slid down on the Floor, an' the way she was Carryin' On reminded me of Days when the Boss has Seven Patients come a-Stringin' In, one after another, tellin' him his Plates is N. G. Dock Knowital he was Good an' Rattled by this Time, an' the mos' Heedless Observer could easy of seen he was in fer one o' the Sensations of a Life Time. He grabbed the Tray Handles, tuggin' an' jerkin' with Might an' Main.

"Come 'ere an' set on her Head, James!" he yelled, noticin' how Obstreperous Miss Watson was a-growin'.

Jis' as I was a-goin' to do it, out come the Lower Tray with them Four Front Teeth stickin' tight in the Plaster, the Whole Output lookin' like it wasn't only necessary to pack in the rubber an' Vulcanize it. "It's a Dandy Impression, sure's you're born, James," said he, winkin' aside at me, like he Hoped Miss Watson wouldn't notice the Accident. Miss Watson she was makin' Herculaneum Efforts to say a few Remarks, an' they'd of been P'inted an' Peppery enough fer the Average Man, I reckon, only she couldn't Say 'Em. Dock he was a-Pryin' at the Upper Tray, now, an' it seemed like he used Force enough to upset our Hall Stove, but it never done No Good, an' after a Spell says he, "All things considered I believe I'll jis' let this Upper Tray stay in a Hour er so, Madam, it'll make the Impression all the Better." He let on like it was the way dentists done sometimes, an' nothin' Supprisin' at all. I knowed Well Enough, though, it was only to Gain Time an' find out what to do. So Miss Watson she Made Motions fer a Pencil an' some Paper, an'

she writ somethin' fer him to Read, an' I seen it. It said: "You send for some Dentist what understands his Business, to get this Muss out o' my Mouth, right away, er I'll have you Prosecuted. I mean it!" An' you could easy see she did, too.

Then Dock Knowital he was reely Dreadful Flustered, an' Pale about the Mouth, like he was Suddenly ketched with a Attack of Pyorrhea. But he made a Grand Rally presently, an' put up a Stiff Bluff. Says he, "I have methods of practice peculiarly my own, Madam, an' I must insist on bein' the Doctor, an' can't allow my Patients to Dictate to me. If you are dissatisfied I must refer you to another Dentist." Miss Watson she still didn't Say Nothin', so then Dock Knowital says he, more Soothin', "Ef you care to take Time to Think it Over, perhaps you'd better Come Back after Lunch, an' we'll try to arrange this matter Amicably. I don't want to have no Misunderstandings with my patients. You kin Pull Down your Vail, an' you'd best not take mutch Solid Food fer the Present."

Miss Watson she begun writin' another Message, an' she made the pencil Hump so it seemed to Spit Fire, the same as her Eyes was adoin'. Jis' as I was alookin' over her Shoulder to see what kind of a Hot Poultice she was a-mixin' fer him, Dock he yanked me back by the Collar, an' out in the Hall. He Hissed in my Ear like a Pizen Adder: "You Cock-Eyed little Cooky-Smuggler, I've a Notion to crack your Head, fer gittin' me in the Worst Fix of my Life. Now you listen here; you scoot over to the Dental College an' you tell Dock, oh—*what's*-his name, the Perfessor of Prosthesis, to hurry over here Quick, in the name o' Sufferin' Humanity an' one o' the Bright Lights of the Senior Class up a High Tree. Tell him to bring a Crow-Bar an' Gas Tongs, an' not to lose a Minute. To save time you kin Explain what's Happened while he's gittin' ready. Now Scoot!"

I was agoin', all right, when who should appear, grumblin' an' seemin'ly cussin' to himself, but the Boss, comin' in the Back Yard Gate. It seems he'd fergot his Bait Bucket, settin' by the Pump. It didn't take Dock Knowital long to call him in an' show him the Freak. Says he, Offul Solemn, while the Boss was sizin' up the Disaster, "It's a New Idee, as I understand it, to leave the plaster in a Hour er so, like our Perfessor o' Prosthesis learns us." Says the Boss, reel Rude, "Leave th' Devil in! Ef I git this out without bringin' the Palate Bones with it, I'll think I've got you off cheap!"

So then the Boss he went to work with his Engine, an' he gouged through the Plaster, an' what with whittlin' at it, an' pryin' an' Fussin', in about a Hour he'd got it all out, an' only Two Teeth, this time. An' then the things Miss Watson said to both o' them, you wouldn't of Believed she was Infant Class teacher in Sunday School, never fer a Minute. Dock Knowital he Snuck Out the room an' Disappeared, an' after a Spell the Boss he seemed Seized with a Panic, an' he Rushed Off without his Hat, an' Snatchin' Up his Bait-Bucket, shinned Head-First over the Back Fence.

I helped Miss Watson pry the Teeth out of the Plaster, an' she give me a Cent, an' said I was the Only Gentleman on the Premises. Then she Went Away.

Cincinnati, O. FRANK W. SAGE, D. D. S.

LEUCOPLASIA BUCCO-LINGUALIS.—M. Bockhart has had sixty patients with this affection. All were men, all smokers and all were syphilitic. The leucoplasia became aggravated usually under mercurial treatment, but could be cured by rinsing out the mouth six to twelve times a day with a .5 to 3 per cent saline solution. The cure was complete in three months to two years, even when smoking was not entirely abandoned. In some of the patients he had the patches rubbed first with balsam of Peru. His patients carry a bottle of the saline solution in their pocket so as to rinse the mouth frequently during the day. Two of the five, who were thus cured so completely that not a trace is left of the trouble, have resumed smoking. When the patients refuse to give up tobacco, at least during treatment, much benefit can be derived from the saline rinsings, but no permanent cure. He found that the leucoplasia became aggravated after application of caustic measures.—*Monatslo. f. Prakt.* (*Jour. A. M. A.*)

INSTRUCTION IN CARE OF TEETH ought to be made part of the elementary school course in physiology and hygiene. So much depends upon cleanliness and health of the mouth and the teeth that the reasonableness of this proposition will be at once recognized. The decay of the temporary teeth may work lasting injury. Digestion is frequently impaired by imperfect mastication, due to defective molars. The presence of microbes bred in particles of food left between the teeth is often the source of serious stomach troubles. Nervous difficulties of various kinds can be traced to neglect of the teeth, and the inference that the development of serious lung diseases has resulted from a neglected mouth is by no means far-fetched. The wisdom of increased attention to the education of children in the things affecting their present and future health and strength is evident to every intelligent adult. Therefore no opposition from school officers ought to be encountered in introducing lessons on the care of the teeth and mouth in the elementary schools.—*School Journal.*

The Dental Digest.

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At 2231 Prairie Avenue, Chicago,
Where All Communications Should be Addressed.

Editorial.

THE NATIONAL MEDICAL UNIVERSITY AND THE INTERNATIONAL COLLEGE OF DENTAL SURGERY.

A correspondent has written us, inquiring about the Dental Department of the National Medical University, of 531 North Wells Street, this city. As there may be others desiring the same information, we deem it best to answer this inquiry in the columns of the DIGEST. It has been believed for some time by many that the dental department of this institution was very much of a "fake."

On the first day of the recent meeting of the State Board one William E. Busby, who claimed to have matriculated in the dental department of this institution in the year 1899, came before the Board and presented a diploma issued by its faculty, showing him to be a graduate thereof in dental surgery, and demanded that a license to pursue the practice of dentistry in the State of Illinois be issued to him thereon.

No recognition ever having been given the dental department of this institution, the question of "reputability" was opened up. At a subsequent session of the Board, W. C. Emerson, Chairman of the Board of Directors of the institution, Dr. L. D. Rogers, the Registrar, and Dr. A. L. Whipple, Dean of the Dental Department, appeared before the Board to establish the claims of the institution to recognition. The Board claims to have made a most thorough investigation of its dental department, its systems, faculty, facilities and management.

It was admitted by the Registrar that diplomas bestowing the honorary title of Doctor of Dental Surgery had been sold for money; that at the time of this occurrence the dental department of the institution had no recognition in Illinois, the state in which it exists; that the purchasers were foreigners, who knew but little of the English language; that they had never matriculated at the institution and

their sole examination was by Dr. Whipple, the Dean, occupying about three hours in the evening, who was aided by an interpreter; that the candidates were examined by no other member of the faculty and did no prosthetic or technic work in the institution, but brought their specimens of work from outside the institution, in at least one case of which it was known to the Board that the work was borrowed by the applicant for the honorary degree and exhibited as a specimen of his own art, and was accepted as such by the Dean.

In support of his action in the matter of the sale of these diplomas to Karl Adolph Loerz, William Nuthmann and others, the startling statement was made to the Board by Dr. Rogers that he had advised with Dr. Julia Holmes Smith, the Dean of the National Medical University, and that she had concurred with him in the legitimacy and propriety of the transaction. The Board also had before it the sworn statement of Dr. Earnhaus, a graduate of Berlin University, who matriculated in the Dental Department during the present year, and who complained to the Board that the institution contained no adequate facilities for instruction in or the study of Dentistry; that during the several weeks of his stay as a student the only clinic work done was the cleaning of teeth.

Dr. A. E. Warner, a reputable dentist at Evanston, Illinois, sent a communication to the Board, saying that he had been visited by a representative of the fraudulent St. Luke's Hospital, of Niles, Michigan, who had offered to sell him a membership in St. Luke's and a scholarship in the National Medical University. This call by the agent was soon followed by a letter from Dr. Rogers to Dr. Warner, inviting him to call that he (Rogers) might make him a proposition. Dr. Warner claimed and Dr. Rogers admitted that they were strangers to each other. Dr. Warner had asked the Board what kind of a proposition they thought Dr. Rogers desired to make to him, and this inquiry was turned over to Dr. Rogers, but he was unable to make any statement or explanation that would divert the mind, not even suspiciously inclined, from its natural conclusion. We are advised by members of the Board that there were many other matters within their knowledge derogatory to the institution.

The Board rightly determined that they could not recognize the institution as "reputable," as shown by the following letter to Drs. Rogers and Whipple, announcing their conclusions:

"Sirs:—The Illinois State Board of Dental Examiners have this

day voted against recognizing the diploma in the hands of Mr. William E. Busby, issued by the Faculty of the National Medical University, and no license to pursue the practice of Dentistry in the State of Illinois will be issued to him on his diploma. This conclusion is arrived at after a patient and, as the members of the Board think, quite thorough investigation of its standing in every particular, management and methods of doing business. The Board are of the opinion that the institution has not conformed to the spirit of the law and the rules of the Board, and that its management has been guilty of evil practices incompatible with good reputation, and that it is not at this time entitled to recognition as a reputable dental college."

The International College of Dental Surgery is the name of an institution claiming to have established itself in a third story flat of six or seven rooms at 182 West Van Buren Street. A William Feltmann is represented as the dean of this institution. It set up business once at 52 State Street and was examined into by the State Board, since which time it is claimed by members of the Board that they have made several efforts to inspect it during what should be, under the rules of the Board, its college hours, but always found its doors closed. This was notably the case on the first day of the last meeting of the Board, when two of its members, after visiting it at three o'clock in the afternoon, returned and were compelled to report that they could not gain admission, that the doors were all fastened and the premises deserted. The dean and the financial backer of the institution, an ex-representative in the state legislature, attended before the Board at one of its sessions and sought recognition or the promise of recognition as an inducement for them to obey the law and observe the rules and regulations of the Board. The institution failed to establish itself as "reputable."

ECHO OF THE HUXMANN CASE.

At the instance of the Illinois State Board of Dental Examiners, the State's Attorney of Cook County recently filed in the Superior Court informations in the nature of quo warranto against the following named holders of State Board licenses, for a judgment of ouster declaring their licenses void: Emil Gumpbolt, Hermann Kuhling, Paul Splitgerber, Johannes Fuchs, Catharine Schumacher, Bernhard Fuchsberger, Hans Lange, Richard Breitfeld, Anton Hofer, Carl Beutelrock, and Oscar Stahl, eleven in all, and it is

understood that there is a large number of like cases to be dealt with as soon as all the facts can be collected and the papers prepared. The charge in some cases is that the holders of the licenses never appeared before the Board for examination, in others that they failed in their examinations, and in all that the licenses were improperly issued. The informations in each case are founded upon the affidavit of the secretary of the Board. Ten of these licenses were issued while Smyser was secretary, and his name appears on each of the ten licenses. One was issued while L. L. Davis was secretary, and bears his signature. Nearly all, if not all, of the persons proceeded against have been students at the German-American Dental College. It is claimed that some of these licenses are forgeries, and this is stated to be true in the cases of Gumpbolt, Fuchs, Hermann Kuhling and others. There are several affidavits to this effect.

FUTURE OF THE DENTAL PROTECTIVE ASSOCIATION.

The fifteenth annual meeting of the Protective Association will occur Monday, Dec. 15, 1902. This will be of greater importance than any previous meeting, from the fact that ways and means for enlarging the scope of usefulness and making sure of the permanency of the organization will be discussed. Committees have been appointed by several societies to devise and recommend plans for a permanent organization, and a full consideration of this important move will be had at this meeting, as we hope to have plans and suggestions from these various committees. It must be apparent to all that the present organization must eventually be disbanded or it will die from inanition and lack of support, but it is the universal sentiment among the members that the present body must not be given up until some form of permanent organization is worked out. No one doubts that we must have some organization to guard against the numerous impositions and abuses which will certainly be practiced upon the dental profession unless some safeguard is at hand to forestall them. The older members of the profession realize this if the younger ones do not. The patent sharks realize that the end is probably near, and they are already beginning operations, as we are in receipt of letters from all over the country asking about the validity of patents on which certain individuals are selling office rights and threatening suits. An organization to be permanent must be laid on

different lines than the Protective Association has been, for in this case a few protected many, interest lagged except when suits were in progress, and all the work devolved upon one man, which will hardly be the case again. We invite not only the members, but all our readers, whether they belong to the Protective Association or not, to offer suggestions on this question, as the future outcome concerns the welfare of every dentist in active practice.

Notices.

JEFFERSON COUNTY (N. Y.) DENTAL SOCIETY.

The annual meeting of the Jefferson County Dental Society will be held at the Woodruff House, Watertown, N. Y., Dec. 8. The profession is cordially invited to be present.

PENNSYLVANIA BOARD OF DENTAL EXAMINERS.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, Dec. 16-19, 1902. For application papers or other information address Hon. James W. Latta, secretary Dental Council, Harrisburg. G. W. KLUMP, Secretary.

OHIO STATE DENTAL SOCIETY.

The thirty-sixth annual meeting of the Ohio State Dental Society will be held at the Great Southern Hotel, in Columbus, Dec. 2-4, 1902. This promises to be one of the largest meetings ever held in the history of the Society. Prominent members of the profession will present papers, and some of the most noted clinicians will operate. Arrangements have also been completed for one of the most extensive exhibits of dental aids and appliances ever seen. A cordial welcome is extended to all members of the profession.

OTTO ARNOLD, President, Columbus.
S. D. RUGGLES, Secretary, Portsmouth.

RESOLUTIONS BY ST. LOUIS DENTAL SOCIETY.

WHEREAS, The St. Louis Dental Society has delegated no authority to any organization, or to any person or persons, to extend to the executive council of the International Dental Federation, recently convened at Stockholm, Sweden, an invitation to hold the fourth International Dental Congress in the city of St. Louis during the Louisiana Purchase Exposition, to be held in said city in 1904; therefore,

We, the St. Louis Dental Society, hereby express our hearty disapproval of such assumption of authority, and also hereby express our regret that the National Association of America deemed it fit to entirely ignore the action of the above-named dental organization of the city of St.

Louis, who had appointed a committee to represent them in the matter of International Congress; therefore, be it

Resolved, That the St. Louis Dental Society assume no responsibility whatever regarding the approaching congress.

SOUTH DAKOTA EXAMINING BOARD.

The South Dakota State Board of Dental Examiners will hold its next meeting, for the examination of candidates for license to practice dentistry in South Dakota, at Mitchell, Jan. 7, 1903, beginning at 9 a. m. All those that wish to appear before the Board at this time must make application to the secretary on or before Dec. 30, 1902. Candidates are expected to bring operating outfit, material and patient.

G. W. COLLINS, D. D. S., Sec'y, Vermillion.

McLEAN COUNTY (ILL.) DENTAL SOCIETY.

Twenty-three dentists of Bloomington and vicinity recently held a meeting and organized the McLean County Dental Society. The following officers were elected: President, F. H. McIntosh; vice-president, J. H. Campbell; secretary, B. M. VanDervoort; treasurer, D. M. Field; executive committee, G. D. Sitherwood, J. S. Reece, O. J. Jarrett; board of censors, J. W. Crigler, J. B. Brown, J. M. Gallahugh. Constitution and by-laws were adopted and the code of ethics of the state society was endorsed. Every one present was enthusiastic, letters were received from many dentists pledging their support, and the outlook for a successful society is very promising. All dentists in McLean and adjoining counties are invited to become members. Monthly meetings will be held, at which dental subjects will be discussed, and the social feature will be encouraged. We hope to be in shape to entertain the state society here next year in a fitting manner.

B. M. VANDERVOORT, Secretary, Bloomington.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

The Pennsylvania Association of Dental Surgeons held its fifty-sixth annual meeting, Oct. 14, 1902, at the Continental Hotel, Philadelphia. The following officers were elected to serve during the ensuing year: President, Dr. Wilbur F. Litch; vice-president, Dr. Geo. W. Cupit; secretary, Dr. J. Clarence Salvas; treasurer and librarian, Dr. Wm. H. Trueman. During the past year the following papers were read and discussed before the Society: "Combination Fillings," by Dr. Joseph Head; "Obtundents," by Dr. Chas. S. Moore; "The Difference in Method of High and Low Fusing Porcelain for Filling Teeth," by Dr. W. A. Capon; "A Practical View of the Plastics," by Dr. J. Clarence Salvas; "Alveolar Abscess, Its Complications and Treatment," by Dr. J. F. Wessels; "The Danger of Infection of the Eye of the Dentist While Operating," by Wendal Reber, M. D.; "The Calcification of the Dentin and Enamel and Its Relation to Hypersensitiveness of These Tissues," by Dr. I. N. Broomell; "Adenoids and Their Relation to Oral Deformity," by

Dr. M. I. Schamberg; "A Sketch of Edward Hudson," by Dr. Wm. H. Trueman; "General and Local Anesthesia, With Special Reference to Its Application in Operations Within the Mouth," by E. Quin Thornton, M. D.

J. CLARENCE SALVAS, Secretary.

INSTITUTE OF DENTAL PEDAGOGICS.

The tenth annual meeting of the Institute of Dental Pedagogics will be held in Chicago, Dec. 29-31, at the Palmer House. All who are interested in dental education are cordially invited to attend. The following program has been arranged: Papers—"Teaching Operative Procedure," Dr. C. N. Johnson; "Teaching General Anatomy to Dental Students," Dr. Borland; "Teaching Electricity and Its Dental Uses," Dr. W. A. Price; "Teaching Embryology," Dr. I. N. Broomell; "Teaching Applied Physics," Dr. G. V. Black; "Physical Diagnosis," a symposium on the "Management of the Teaching of Demonstrators in the Infirmary," by four professors. Report of committee on "Four-Year Curriculum." Report of committee on "Nomenclature." All new teaching appliances must be submitted to Dr. W. H. Whitslar of Cleveland, or to Dr. J. D. Patterson of Kansas City.

HART J. GOSLEE,
President.
W. EARL WILLMOTT,
Chairman of Executive Board.
H. B. TILESTON,
Secretary and Treasurer.

RESOLUTIONS BY VALLEY DISTRICT DENTAL SOCIETY.

WHEREAS, It is with deep regret that this Society learns of the death of our esteemed fellow member, Dr. J. Searle Hurlbut, and we desire to express in a formal manner our appreciation of his life and a sense of the loss we have sustained; and,

WHEREAS, By his strong personality, his broadly cultivated views, his refined manner and dignified bearing, he was one of the leaders in influencing an intelligent public to that just appreciation of the dental profession which later years have witnessed; therfore, be it

Resolved, That in the death of Dr. Hurlbut the members of this Society feel they have sustained a personal loss and the dental profession one of its eminent members; and be it

Resolved, That we extend to his wife our most sincere and heartfelt sympathy; and be it further

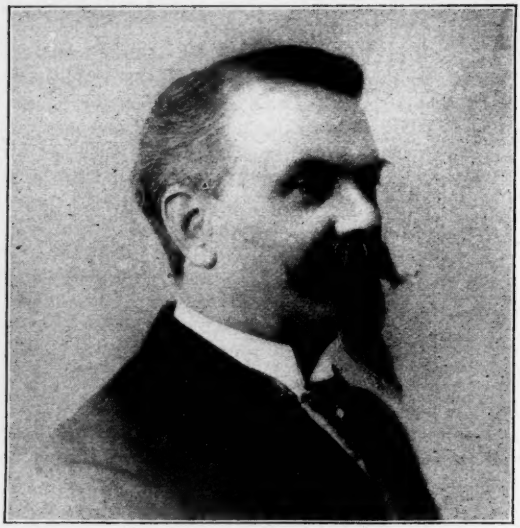
Resolved, That a copy of these resolutions be sent to his wife, to the various dental journals, and to the daily papers.

GEO. A. MAXFIELD,
C. T. STOCKWELL,
N. MORGAN,
Committee.

Nov. 17, 1902.

JARIUS SEARLE HURLBUT, D. D. S.

Dr. Hurlbut died suddenly from apoplexy, Nov. 9, 1902. He was born in West Springfield, Mass., Jan. 5, 1842, being one of six children, five of whom were sons, and of these three died at the age of twenty-one. When he was ten years of age his parents moved to Springfield. He graduated from the high school of that city in 1860. Soon after he went into the office of his brother, Dr. C. S. Hurlbut, Sr., with whom he was associated for several years as student and partner. He attended the Philadelphia Dental College,



J. SEARLE HURLBUT.

graduating in the class of 1865. His health being poor after graduating, he went to St. Paul, where he practiced for a year. In 1866 he opened an office at 374 Main Street, Springfield, where he remained for twenty-seven years. In December, 1893, when the Masonic building was completed, Dr. Hurlbut, with his nephew, Dr. Allis, leased the corner suite of rooms.

In the Connecticut Valley the name of Hurlbut almost suggests the word dentist, for three of Dr. Hurlbut's brothers and two of his nephews have studied for the profession. He was a member of the old Connecticut Valley Dental Society—the leading dental society in New England—from 1865 until 1895, when it was merged into the Northeastern Dental Association, of which his membership continued until his death. He became a member of the

Massachusetts Dental Society in 1873, and was thus one of the original members of the Valley District Dental Society. He was also a member of the American Academy of Dental Science of Boston, of the Odontological Society of New York and of the National Dental Association. He was honored as president by the Connecticut Valley Dental Society in 1873 and by the Massachusetts Dental Society in 1874. When the dental law was enacted in 1887 he was appointed by Gov. Ames a member of the Board of Registration in Dentistry. In 1891 he was made president of this Board, which office he held until he resigned his membership, in 1896.

It will be seen from this brief sketch that Dr. Hurlbut was active, studious, alert and progressive from his early youth. In his death the profession and the community in which he lived have sustained a severe loss. As a friend Dr. Hurlbut excelled, and anyone who had ever enjoyed his hospitality had something to always remember with pleasure. He always stood firmly for the upbuilding of his profession.

News Summary.

J. W. SAWYER, 68 years old, a dentist at Boston, died Oct. 30.

F. E. MIX, for many years a dentist at Hartford, Conn., died Oct. 19.

B. RATHBUN, 67 years of age, a dentist at Dunkirk, N. Y., died Nov. 13.

W. B. MAXON, 60 years of age, and formerly a dentist in Alabama, died Oct. 29.

L. P. BLAIR, 40 years old, a dentist at Minneapolis, died Nov. 14, from Bright's disease.

W. P. IVES, 45 years old, a dentist at Brooklyn, died from an overdose of morphin, Oct. 30.

C. R. BOTELER, 63 years of age, a retired dentist of Baltimore, died in New York, Oct. 18.

E. P. SMALL, 43 years of age, a dentist at East Providence, R. I., died Nov. 10, from meningitis.

A. B. MASON, 69 years of age, a dentist at Toledo, O., died Nov. 12, from an explosion of gas.

J. M. MELLEN, for several years in practice at Knoxville, Tenn., died Nov. 13, from tuberculosis.

CHARLES LEWIS, 40 years of age, a dentist at St. Anthony, Idaho, died Oct. 26, from heart disease.

A. W. ELDRIDGE, 59 years old, a dentist at Big Rapids, Mich., died Oct. 23, from a stroke of epilepsy.

P. T. HULL, 43 years old, a prominent dentist of New York City, died Nov. 17, from consumption.

KNOCKER.—A dentist in Wisconsin is advertised in the town paper as having bought "a new double back-action non-painless mallet for extracting teeth,

which is endorsed by all leading authorities." Probably he is going to knock out the teeth.

J. A. TROUTMAN, 65 years of age, a dentist at Ft. Scott, Kan., died from an overdose of morphin, Nov. 9.

T. L. COBB, 47 years old, a dentist at Montgomery, Ala., died Nov. 1, from injuries received in a runaway.

J. D. KNOWLES, 62 years old, and for many years in practice in San Francisco, died Nov. 23, from heart failure.

EDGAR D. SWAIN, for many years a dentist of Chicago, and lately of New York State, has opened an office at Batavia, Ill.

FIRES.—A. C. Seiser, Keytesville, Mo., Oct. 27, total loss.—H. D. Wilson, Bainbridge, Ga., Oct. 22, total loss, partial insurance.

R. L. LILLARD, 23 years of age, a dentist at Merced, Cal., accidentally killed himself, Oct. 20, by an overdose of nitrous oxid gas.

H. GULMYER, a young dentist at Elkhart, Ind., recently shot and probably fatally wounded a young woman of whom he was jealous.

HOW LONG DEAD?—A Missouri newspaper says: "Dr. Deadman has opened a dental office. He is a past master in his profession."

MILLER WINS GOLF CHAMPIONSHIP.—Dr. W. D. Miller, the famous dentist of Berlin, recently won the golf championship of Germany and Austria.

GOOD ADVICE.—Winks: "What advice did the dentist give you when you went to him this morning?" Blinks: "He advised me to go to some other dentist to whom I didn't owe $25."

WORCESTER (MASS.) INSTITUTE OF STOMATOLOGY held its regular monthly meeting Nov. 12, and elected the following officers: President, A. F. Wheeler; secretary, R. R. Stimpson.

AGE TOLD BY DENTISTS.—Factory inspectors in Illinois are successfully enlisting the aid of dentists to tell by the teeth the age of children whom they think are too young to work in factories.

TWO KINDS OF COURAGE.—Dentist's Daughter: "Well, have you asked papa for my hand?" Wooer: "No, every time I step into his office I lose my courage—to-day I allowed him again to pull a tooth."

ROXBURY (MASS.) DENTAL ASSOCIATION held its annual meeting Oct. 9, and elected the following officers: President, A. Wongenroth; vice-president, I. H. Small; secretary and treasurer, W. F. Gray.

STERILIZING THE MOUTH-MIRROR.—Sodium peroxid is an immediate and perfect sterilizer, applicable to almost anything, and especially to the mouth-mirror and other things which cannot be boiled.—*Items.*

PEORIA (ILL.) DENTAL SOCIETY held its regular meeting Oct. 23, and elected the following officers: President, J. P. Luthringer; vice-president, C. E. Collamer; secretary, R. L. Graber; treasurer, George T. Gray.

THIOCYANATE IN HUMAN SALIVA.—E. C. SCHNEIDER (*Am. J. Physiol*). In smokers, the average percentage of potassium thiocyanate is 0.013; in non-smokers, 0.003. The amount diminishes on prolonged stimulation of the

salivary glands. The parotid saliva is always richer than the submaxillary saliva of the same person at the same time.

BENZINE is one of the best things for cleansing the skin after ointments have been used, and for removing sticking plasters. It is cheaper than ether, does not produce a cooling effect, and causes no irritation.—*Franks.*

HUNTINGTON COUNTY (IND.) DENTAL SOCIETY was organized Oct. 26, and the following officers were elected: President, A. H. Wagner; vice-president, T. H. Hague; secretary, W. M. Strauss; treasurer, W. H. Weybright.

TO MEET THEIR NEEDS.—Mrs. Oldun: "People seem to have more trouble with their teeth nowadays than they used to." Oldun: "True, my dear, but just think how many more dentists there are to be supported than there used to be."

VULCANIZING ON PLASTER MODELS.—A model upon which rubber is to be vulcanized should be as deep as it is wide, or the expansion of the plaster will be unequal, the model will alter in shape, and a badly-fitting case will be the result.—*Ex.*

SURE SIGN.—"Doctor, is the nerve dead?" "Yes," at the same time pulling another installment of putrescent pulp from the canal. "How do you know?" "By the same sign given by Martha at the grave of Lazarus: 'Lord, by this time he stinketh.'"

ABOUT TIME.—In one of the Philadelphia colleges a professor asked a student: "Now, suppose you were called to a patient who had swallowed a heavy dose of oxalic acid, what would you administer?" "I'd administer the Sacrament."—*Argonaut.*

CARPETS VALUABLE.—A dentist in Kansas recently realized $35 from the sale of an old carpet to a refiner, who got more than that amount of gold out of it. Several dentists report that refiners will give them a new carpet each year for an old one.

LEHIGH VALLEY (PA.) DENTAL SOCIETY was organized Oct. 21, 1902, and the following officers were elected: President, V. S. Jones; vice-president, W. C. Meddaugh; secretary, H. W. Wiltberger; corresponding secretary, H. W. Solt; treasurer, J. C. Hertz.

VACCINATION EFFICACIOUS.—In the Island of Porto Rico a general vaccination (860,000) was completed on June 20, 1899. Since then the island has recorded just 3 deaths from small-pox in two years. The average for ten years previous was 629.—*Med. Times.*

S. J. COCKERILLE, 72 years of age, a dentist at Washington, D. C., died Sept. 9. Dr. E. P. Beadles says: "He was in active practice up to 1899, and was a successful dentist of the old school, never using a dental engine, and doing contour work with non-cohesive foil."

SUPERVISION OF THE TEETH OF SCHOOL CHILDREN IN DENMARK.—The town of Frederiksberg in Denmark has hired a dentist to inspect the teeth of the school children regularly twice every year. Parents are notified by a printed circular whenever the teeth of their children are found to need attention.

The supervision extends to both the public and private schools, and has proved a most salutary measure, as was officially announced with details at the recent Danish dental congress.

FATALITIES.—Oct. 30, a woman 39 years old died suddenly from heart disease while a dentist was examining her teeth, with a view of extracting some of them. Fortunately for him, she had not yet taken the anesthetic.

NO PAY, NO TEETH.—The police were recently called to a dentist's office in New York City by the friend of a man whom the dentist would not allow to leave his office until he had paid for a set of teeth. The "prisoner" finally gave security for the bill and was allowed to depart.

NATURAL MISTAKE.—Patient: "Didn't you say you were going to put a bridge in there?" Dentist: "Yes, that's what I am doing." Patient: "Well, I suppose you know your own business best, but from the way you started I thought you were going to dig a tunnel."

SOUTHERN CALIFORNIA DENTAL ASSOCIATION held its fifth annual meeting at Riverside, Cal., Oct. 20-21, and elected the following officers: President, J. W. White; first vice-president, C. S. Lane; second vice-president, J. W. Neblett; treasurer, A. T. Covert; secretary, L. E. Ford.

BOGUS SOLICITOR.—The publishers of *Success* wish to warn the dentists of the country against a swindler who claims to represent that magazine and takes subscriptions for it. He is not an authorized solicitor and never turns in the money received. All regular solicitors have credentials.

NEW COMPLAINT.—Askit: "Whatever became of that patient of yours you were telling me about last spring?" Dr. Sokum: "Oh, he's got a complaint now that's giving me a great deal of trouble." Askit: "Indeed! What is it?" Dr. Sokum: "Its about the amount of my bill."—*Philadelphia Press.*

GOOD WORK.—In Seattle, Wash., a jury has pronounced Dr. James G. Stewart, a regular physician of that city, and O. V. Lawson, an applicant for license from the board of registration, guilty of conspiracy to defraud. Dr. Stewart agreed to furnish in advance the questions for the medical examination; he gave Lawson an old set, and Lawson then exposed Stewart and arrest followed.—*Jour. A. M. A.*

DIVORCES.—Dr. O. C. Hiatt, a dentist at Forest Grove, Ore., has brought suit for divorce against his wife.—Mrs. J. J. Phelan has brought suit for divorce against her husband, a dentist of Denver.—J. C. Littler, a dentist at Albany, Ore., has secured a divorce from his wife on the ground of desertion. It is stated that she left him because he would not allow her to practice dentistry in his office, although she was a graduate.—W. S. Sweet, a dentist at Denver, formerly of Iowa, has sued his wife for divorce.

MARRIED.—E. R. Bender, Columbus, O.—Alice Goodwin, Malta, O., Oct. 20. Isaac Burton, Colorado Springs—Marie Williams, Colorado Springs, Oct. 27. H. J. Hanson, La Crosse, Wis.—Anna Erickson, La Crosse, Nov. 14. G. R. Hanna, Rochester, N. Y.—Anna Jane Ross, Rochester, Nov. 3. C. A. Hawley, Oakland, Neb.—Clara B. Eichenberger, Bertha, Neb., Oct. 22. W. H. Lockhart, Traverse City, Mich.—Florence O. Rosenthal, Traverse City, Oct. 21.

T. A. Lee, Bowling Green, O.—Anna H. Poe, Fostoria, O., Oct. 29. J. E. Long, Leroy, Ill.—Mary E. Johnson, Farmer City, Ill., Oct. 29. David Smith, Chicago—Ruth Smith, Chicago, Sept 28. H. Thomsen, Beemer, Neb.—Elizabeth Granz, Omaha, Neb., Oct. 15.

Robberies.—Nov. 6, Dr. Gustavus North of Cedar Falls, Ia., was robbed of $100 worth of gold and material. The thief climbed over the transom of the office while the doctor was at dinner.—Oct. 22, a dentist at Ottumwa, Ia., lost about $200 worth of gold and material.—Nov. 8, a dentist at Cleveland was robbed of $75 worth of stuff.—Nov. 1, a dentist at Wells, Nev., lost a considerable amount in gold.

Policeman Runs Amuck.—An oversized policeman at Cincinnati went to a dentist to have five teeth extracted. After the dentist had administered chloroform for a few seconds the officer became crazed and nearly wrecked the furniture before the effects of the drug passed off. He was then taken to a hospital, and this time it required five men to hold him until the chloroform had gotten in its work.

Answered.—Student: "Professor, one of the class wishes to know if your ears ever smile when your mouth goes by." Professor: "Those parts of my anatomy mentioned not being within easy range of vision, I cannot say; but I have often noticed in the case of this particular student that his mouth, likewise the corresponding holes in the faces of other members of the class, smile when his ears go by."

Tic Douloureux Cured by Electricity.—Henri Bordier (*Jour. des Practiens*) considers electricity the most favorable method of treatment for neuralgia. He uses aluminum or platinated copper electrodes, the galvanic current, 60 to 80 milliamperes for an hour daily, in trigeminal neuralgia. Two case-histories are reported in detail, men of 59 and 69, both cured permanently by galvanism. Bordier considers this treatment invaluable in tic douloureux.

Stomatitis Due to Bacillus of Vincent.—Dr. H. Heiman presented two children suffering from this form of ulcero-membranous stomatitis. The bacillus of Vincent and the spirillum of Muller were found constantly associated with this variety of stomatitis. A smear from the ulceration made on a cover-glass and stained with carbolfuchsin would show the characteristic bacillus. The treatment consisted in the application of a 5 or 10 per cent solution of nitrate of silver, and a mouth wash of permanganate of potassium.—*Med. Record.*

Curious Medical Certificate.—A man in New York recently made complaint against another man, whom he accused of knocking out several of his teeth. They were both Italians, as was the physician who signed the following certificate, which the complainant handed the judge sitting in the case: "I certify that I had visited Nicola Bonanno, fifty years old, and have found in him severe lesion superficial of the skin in the nose and in the face and echimosts into the same particsialso asportation of the incisive tooth and luxation of other two teeth in the inferior dental series, with lesions of the

soft parties of the gum. This lesion is curable complexibly in several days with doubt of the debility into the luxative teeth." The case was adjourned.

HEREDITARY SYPHILIS.—A French writer, Dr. A. Brunet, states that erosion of the first lower molar tooth is a pathognomonic sign of hereditary syphilis. This sign is said to be much more reliable than irregularities in the incisors for the reason that ossification of the first molars occurs at the sixth month of intrauterine life and the erosion is due to a partial interference with normal process of ossification.

BAKERS' TEETH.—A dentist has called attention—says a London weekly journal—to the deplorable condition of the teeth of bakers, and asserts that he is often able to tell the profession of the patients by the condition of their teeth. The decay is soft and rapidly progressive. The principal parts attacked are the outside surfaces of the teeth, commencing at the top of the root and rapidly extending to the grinding surface.

BRITISH DENTAL ASSOCIATION PROSPEROUS.—The treasurer reports that the Association has $12,500 on hand. The membership is now 1,205. There are only 4,600 registered dentists in England, Ireland and Scotland, and even supposing that the membership list embraces dentists from all three countries, the British Dental Association sets an example for every dental society in this country, both in membership and financial condition.

RECORDS VALUABLE.—A physician in Kansas City recently sued a patient to recover $489 for medical services, and the patient began a counter suit for $25,000 damages for malpractice. The physician won the case only because he had kept a daily record while in attendance on the patient, by means of which he was able to prove great care and unusual skill in treatment. This shows the importance of physicians keeping notes of all cases, and the necessity is only a little less for dentists.

N. Y. DENTAL PRACTICE BILL—There has been introduced in the New York State Legislature a bill providing that no degree in dentistry shall be conferred in this state unless the candidate has satisfactorily completed a three-year course in an institution registered by the regents or has had five years' actual practice in operative and mechanical dentistry subsequent to the registration of his certificate as a student, and passes an examination to the satisfaction of the board of examiners.

DAMAGE SUITS.—A woman in New York sued two dentists and an X-ray operator for $5,000 damages for injuries resulting from an exposure to the X-ray current. She was a persistent sufferer from neuralgia, and the dentists had X-ray photographs taken of her face to discover the cause. The judge dismissed the suit on the ground that she had no just claim for damages.—A woman in Chicago has sued the Boston Dental Parlors for $5,000 damages, claiming that the work which she had done there was very unsatisfactory.—A woman in Rochester, N. Y., has sued a dental parlor for $100 damages, claiming that the operator injured her jaw while extracting a tooth.—A man in San Francisco has sued a firm of "painless dentists" for $1,500 damages,

claiming that they ruined his teeth by unskillful work.—A woman in Seattle, Wash., has sued her dentist for $1,000 damages for unskillful work.

ACOINE—A NEW ANESTHETIC.—Acoine is the name of a product destined to rival cocain, morphin, chloral and other anesthetics. A drop upon a gnawing tooth diminishes pain. Its properties were recently reported to the French Academy of Medicine by Dr. Chauvel, based upon experiments. It is claimed that acoine is not toxic.—*Phila. Med. Jour.*

CONFLICTING TALES.—A woman in Paterson, N. J., has caused the arrest of a dentist on the charge that while she was under the influence of an anesthetic given for the extraction of some teeth he kissed her. The dentist says that three other people were in the room all the time, that it took all four of them to hold her, and that while under the influence of the anesthetic she broke up the furniture and tried to throw herself from the window.

ACCIDENTS.—Oct. 23, while a woman was sitting in a dentist's chair, a piece of iron crashed through the window and broke her arm. Investigation showed that workmen were breaking up old iron with dynamite and that this piece had been blown a quarter of a mile.—The vulcanizer of a dentist at Baltimore blew up Nov. 3, and badly injured the dentist. He may lose his eyesight.—The vulcanizer of a dentist at Grand Rapids, Mich., blew up Oct. 8, and wrecked the premises.

AS OTHERS SEE US.—Success to the DIGEST, our best dental journal. W. H. Ryland, Lonaconing, Md.—The DIGEST becomes more and more interesting and valuable. F. M. Thompson, Detroit.—I consider the DIGEST our best dental journal. W. N. Rowell, Lewisville, Tex.—I am much pleased with the sample copy of the DIGEST, and think in future I shall take your journal only, as it seems to cover all the ground. Another reason is because it is free from the Combine. E. D. Washington, Wolseley, Can.

SALIVARY CALCULUS.—J. J. D. Bryant showed a salivary stone which he had removed from the submaxillary duct. It weighed twenty grains and was an inch and one-quarter in length, which is about the usual length of the duct in which it was molded. The calculus had bothered the patient for about six months. It had given rise to considerable pain, due to obstruction of the duct.—*Med. Record.*

TO AVOID REPOLISHING AN ENTIRE GOLD PIECE AFTER REPAIRING.—*Zahnkunst* (quoted in *Archiv fur Zahnheilkunde*) advises the following procedure in cases where repairs have to be made: The plate after being painted with a solution of borax, which is allowed to dry, is invested and soldered. After the soldering, the plate is boiled in a weak solution of sulfuric acid. By this method, it is claimed, only the soldered part will have to be repolished.

ILLEGAL PRACTITIONERS.—Last month a traveling dentist in Iowa was arrested for practicing without a license.—Oct. 24, a dentist at Denver was arrested for failure to have a license.—Nov. 11, a dentist at Victor, Colo., was arrested for being without a license.—Nov. 11, a dentist at St. Louis was arrested for practicing without a license. The Missouri State Board of Medical Examiners expects to begin immediate action again all the illegal practitioners in the state.—Nov. 8, a student at Biddeford, Me., was given three days in

which to decide whether he would leave town or would stand trial for practicing dentistry without being registered.

Overeating and Morality.—At a recent purity congress held in Chicago a vegetarian delegate read a curious paper on diet. He stated that much of the immorality in the world was due to the eating of animal food. "The cook," he said, "often leads to more drunkenness and excess than the saloonkeeper. Highly seasoned rich animal foods lead to indigestion and ill-health. Ill-health weakens the will, and a weak will breaks down the moral character. Total depravity is often nothing but total indigestion."

This reasoning reminds one of the old conundrum: "Why is home like a baby?" the answer being: "Because home is where the heart is; the heart is in the chest; the chest is a box, a box is a small shrub, a small shrub is a growing plant, a growing plant is a beautiful thing, a beautiful thing is a primrose, a primrose is a pronounced 'yeller,' and a pronounced 'yeller' is a baby."—*Ex.*

Has This Idea Ever Occurred to You Before?—At a meeting of the American Dental Convention, held in August, 1857, a member, Dr. Leech, made the following observation: If you take a piece of steel and make a slight mark across it with a file, you take from its strength more than you would if you should cut down the whole instrument to that size, for the reason that in applying a bending force to it, the whole effect of the force is expended over the point cut by the file, whereas with a uniform reduction of surface the bending force is distributed over the entire length of the piece of steel. Hence it is important that every instrument should have as polished and smooth a surface as possible, and that the angle should not be too abruptly turned; an angle turned with a perfect corner is not so strong as one that has a slight curve. In forming steel into instruments as true a taper should be carried back to the cutting point into the socket or handle as possible, so that the strain will become gradual all along to the point. If a shoulder is cut down to get a small size the spring is closed at that point and a strain will wrench it off.—*Cosmos.*

Infantile Pathology at the Period of Deciduous Dentition.—In a paper in the *Lancet*, Dr. W. H. Dolamore makes the following statement: "There are still diverse opinions as to the infantile diseases occurring during dentition—as to whether they are merely coincident phenomena due to the irritation of teething, or whether they themselves are the existing cause of delayed and painful dentition, the diseases interfering with what should be a painless physiological process." [In some cases infantile diseases are the cause of retarded dentition, for, as is well known, disturbed nutrition will retard the development of an organism in proportion to the extent of the interference with the nutritional process. In other cases, however, the constitutional disorders are due to a constant irritation of the highly sensitive pulps of the not fully developed deciduous teeth. Hence it is easy to comprehend the reasons for the prevalence of several opinions on this question and the impossibility of definitely stating whether the diseases from which the infant may be a sufferer at the time of dentition are caused by difficult eruption or *vice versa.* Experience has, however, shown that in a great

majority of cases pathological dentition is the predisposing cause, while in other cases it is the direct cause, of the serious general phenomena with which the dentist who has had an opportunity to treat infants, or the pediatric, is so well acquainted.—Ed. *Cosmos.*

Gelatin as a Hemostatic.—Zibell (*Munchener med. Woch.*) analyzed four specimens of gelatin and found that the most constant constituent was calcium, the average amount present being 0.6 per cent. In 100 cc. of a 5 per cent solution this would correspond to 0.03 gm. of calcium—a not inconsiderable dose, particularly when it is considered that in this form it is very soluble and therefore very absorbable. The action of calcium salts in hastening coagulation is well known, and in the absence of more definite knowledge it seems highly probable that the gelatin owes its hemostatic properties, when given subcutaneously, to the calcium it contains.—*Med. Times and Hospital Gaz.*

Ankylosis of Temporo-Maxillary Articulation.—M. Gindus speaks of this affection as being most rare. It manifests itself generally between the ages of fifteen and twenty years. The ankylosis is generally unilateral, although cases of double ankylosis have been reported. Irreducible dislocations may give rise to this trouble; also fractures of the neck of the condyle, and especially fractures of the walls of the glenoid cavity. Traumatic arthritis may also be the starting point for this trouble. These are only a few of the causes of this serious affection. The prognosis of ankylosis of the jaw is grave, from the fact that it hinders or prevents mastication and renders normal digestion impossible. Nutrition is compromised and serious results follow. Numerous operative proceedings have been proposed by different authorities. The writer concludes that a serious traumatism of the temporo-maxillary articulation occurring at an early age is always followed by bony ankylosis. Ankylosis is favored by the proliferation of a very active periosteum. Surgical treatment is justifiable, the best method being the resection of the condyle, and, if necessary, the resection of the coronoid apophysis. The success of the result is proportional to the size of the piece of bone which is removed.—*Rev. Méd. de la Suisse Romande.*

Ether Narcosis.—Paul Campiche concludes that: (1) Ether is a specific irritant of the lungs and bronchi, and consequently is absolutely contraindicated in all patients whose respiratory apparatus is in bad condition; (2) Even when taking cognizance of the contraindications to ether, and although the technique be as perfect as possible, the point of entire suppression of ether pneumonia has not yet been reached; (3) A certain number of accidents are inevitable, and in the use of chloroform they are undeniably more frequent than in ether narcosis; (4) The rôle of the responsibility of narcosis for pulmonary complications has been greatly exaggerated; (5) A general defective state (bad for the heart in ether, and bad for the bronchi in chloroform) is responsible for many untoward results in narcosis; (6) But in the great majority of patients there are no accidents, unless the operation is particularly favorable to pulmonary complications, viz., operations for hernia, for goiter and laparotomies; (7) Ether, being less dangerous

than chloroform as regards the remote consequences of narcosis (bronchitis and pneumonia), ought to be, excepting its contraindications, adopted as the anesthetic of choice on account of its great advantages over chloroform, chief among which is its harmless effect on the heart and the circulation.—*Rev. Med. de la Suisse Romande.*

Insanity Among Women.—Professor Zimmer of Berlin has been investigating the causes, and has come to the conclusion that if women are admitted into competition with men the inevitable result will be a tremendous increase of insanity among the women. He finds that the percentage of women teachers who become insane is almost double that of the men teachers. Inquiries were also made about women employed as telegraphers, sales clerks, and in the telephone service, and, furthermore, with regard to women engaged in the Swiss watchmaking trade. These inquiries showed that in the occupations mentioned a far larger proportion of women than men succumb to mental disorders.—*Med. Times.*

Bone Filling With Amalgam.—J. H. Barbat reports the case of a man with an ulcer of the leg contracted in the tropics, and which led through a fistula to the diseased tibia. The diseased portion of the bone was exposed and removed, and the cavity was filled with ordinary copper amalgam until the whole surface was covered, leaving a hole, which was partly filled with dental cement, the top being covered with more amalgam. The skin was sewed over the filling and dressings were applied. The wound healed except at the upper angle, with relief to all symptoms. The small opening at the upper angle refused to close, and probing revealed the fact that some of the bone had broken down. The amalgam was removed, and the bone was found in good condition, except at the upper end, which was curetted and the cavity filled with formalin gelatin. This was in turn removed, leaving a large cavity covered with a healthy surface. In time the skin grew down into the cavity, and complete healing finally ensued.—*Occidental Medical Times.*

New Local Anesthetic.—*The Lancet* in a recent number writes of a new local anesthetic procured from a plant named "gasu-basu," a native of India, the active principle of which is an alkaloid. The English journal says that experiments were made with a salt obtained by treating the alkaloid with hydrochloric acid. The salt has been named nervocidin. In weak solutions it produced a marked local anesthesia of the cornea of warm-blooded animals. Two drops of 1-20 per cent solution applied to the human conjunctiva produced a burning sensation, accompanied by lachrymation, and followed, after twenty minutes, by anesthesia of the cornea, lasting for five hours. After seven hours the cornea regained its normal condition. A 1-10 per cent solution of nervocidin brushed over the mucous membrane of the cheek caused local anesthesia of the brushed surface, and of the tongue, accompanied by loss of the sensation of taste and the perception of touch, but without loss of the perception of heat and cold. Subcutaneous injections of the drug have not, as yet, been successful in producing local anesthesia in animals. The general action of nervocidin on the system was that

of a toxic which, by paralyzing the motor centers of the nervous system and of the peripheric nerves, caused death. All the experiments up to the present undertaken proved that nervocidin was a powerful local anesthetic possessing a great advantage over cocain, in that it produced a much more sustained action, for the effect of a ½ or 1-5 per cent solution might last for two or three days. The new anesthetic, however, has its drawbacks, such as the local irritation to which it gives rise, the slow production of a state of anesthesia (from ten to twenty minutes being required), and a liability to cause nausea, vomiting salivation and other symptoms of general poisoning.—*Med. Record.*

Resection of Superior Maxilla.—Dr. William E. Casselberry showed a case in which a unilateral resection of the superior maxilla had been made on account of intranasal fibro-sarcoma, presenting the patient chiefly to demonstrate the degree of deformity resulting. The incision was made from below the orbit around the nose and through the lip, the flap dissected back, and the left maxilla, including the teeth, removed. The man's cheek, however, still has a reasonable prominence. Union has failed along the line of the cleft in the hard palate, so that the patient practically now has an acquired cleft palate. The situation of the growth and a shadow on transillumination led me to think the antrum was involved, and this was one reason why resection of the superior maxillary bone was decided on. When we came to shell the growth out, it was disclosed that the antrum was not directly involved, but I am still of the opinion that the operation was justified by the appearance and character of the growth, but more so on the supposition that the antrum was involved. Had I been able to determine that the maxillary sinus was not affected, I would have advised a less extensive operation. There is, as yet, no definite evidence of recurrence, although the tissue which has partly filled in the space of the cheek bone does not look entirely natural.

Another hazard of the operation concerns the necessity of ligating the common carotid, or at least the external carotid artery, in order to control hemorrhage. Following the operation, this patient became paralyzed on the right side, and the paralysis has persisted somewhat, but it is gradually becoming less. Inasmuch as the line of ligature of the external carotid is very close to the common carotid, the paralysis might have occurred from a clot going through the common carotid as an embolus.—*Jour. A. M. A.*

Cocain and Eucain.—By George W. Crile.—Mention is made that cocain or eucain when injected into a nerve trunk produces a "block" or a condition of the nerve which prevents the passage of afferent or efferent impulses. The conductivity is as completely interrupted as if the nerve were divided. This "physiological block" may also be produced when one of the above named substances is injected underneath the nerve sheath. The effect of cocain or eucain upon the nerve structures—rest of functional activity—is the same. The general action of cocain and eucain is also practically identical. Injection of cocain into the venous system is followed by a temporary increase in the blood pressure. In toxic doses the blood pressure rapidly sinks. The author carefully details the effects of cocain when injected into the spinal cord or into the subarachnoid space. He then cites the clinical application

of the experimental evidence, noting the effect of an injection of cocain into the nerve trunks for operations on the extremities; for amputations of the leg; amputations at the shoulder joint, and laryngotomy. The histories of a number of cases are included in his article. The following clinical summary is drawn: "In the clinical use of cocain and eucain particular attention is called to a most important feature, viz., that shock is almost wholly avoided, because all afferent impulses are blocked. It is not known that afferent impulses set up by injury or operation are the cause of shock. These impulses are but slightly modified by general anesthesia. The afferent impulse, constituting pain, is abolished by general anesthesia, but those affecting the vasometer, the respiratory and the cardiac mechanisms are not controlled; but cocain or eucain absolutely blocks their passage, making a physiologic amputation of the part. These anesthetics wholly prevent reflex inhibition, but the principal causes of collapse in certain operations and injuries, e. g., operation on the larynx and pharynx. Given hypodermically, the experimental evidence shows that they diminish shock in operation on the splanchnic area and absolutely alter this area in the processes of operation or exposure, as abundantly proved by the series of double experiments. I have had but two opportunities of testing this clinically, both in operations for gunshot wounds of the intestines, and in each experimental evidence seemed to be corroborated.—*Jour. A. M. A.*

THE DOCTOR WOMAN.

I ONCE was sick. Oh, heavens, how I ached!
My eyeballs bloodshot in their sockets rolled;
My skin was dry, my mouth and throat were baked.
While up and down my back ran streaks of cold.

Sometimes a cramp would bend me like a bow,
And then I'd stretch like Goodyear's gum elastic,
When suddenly a pain from depths below
Would shoot across the region epigastric.

And add to this—oh, sad it is to tell!—
I had no wife, no servant near me;
Was stopping at a very poor hotel,
And tried in vain to make the waiters hear me.

I thought at length that I must surely die,
So seized a bootjack, lying on the floor,
And with the little strength I had, let fly
That useful implement against the door.

A female Dutch domestic in the hall
Was roused at last by this tremendous clatter,
And angrily responded to my call
With "Vell, now, mishter, vot ish all de matter?"

"Matter!" I cried, my patience lost entire,
"I'm sick and dying; if you are but human,
Send for a doctor, or I shall expire!
Oh, for a doctor! Quick! A doctor, woman!"

"Yah!" roared she out, "a Doctor Voman. Vell,
I sends you von right off!" Away she sped.
But what my feelings were I dare not tell,
As I sat shaking in my lonely bed.

Then came a tread of feet along the floor,
And, with a voice quite loud enough for two men,
That Dutch domestic opened wide the door,
And, grinning, shouted, "Here's de Doctor Voman!"

And there she stood, a picture; rosy cheeks,
A blue, clear eye, whose depths were almost killing;
Her lips were rubies, pouting when she speaks,
With pearls of teeth without a speck of filling.

She took a chair and sat beside my bed,
And placed her tiny hand upon my brow;
And as she softly smoothed my aching head,
She sweetly whispered, "Are you better now?"

"I—I—I really think I do feel better."
(She was so graceful, modest, fair and young,
And asked so very sweetly if I'd let her
Look for a moment at my horrid tongue.)

"How is your heart," she asked, "that fount of life?
Does palpitation ever break your rest?"
And then (this part I never told my wife)
She laid her head, to listen, on my breast.

Forthwith the fever left me, and a thrill
Of life and health went bounding thro' my veins;
I never took—I kept—the little pill
She left as sure specific for my pains.

And when I told my wife how sick I'd been,
The story of my suffering greatly shocked her;
I told her 'bout my pains, my aches, the inn,
But did not mention much about the doctor.

—Dr. W. T. Helmuth in *Maryland Med. Jour.*

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